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FINAL ENVIRONMENTAL IMPACT STATEMENT

PROPOSED
PREFERENCE RIGHT PHOSPHATE LEASE
LOS PADRES NATIONAL FOREST

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Curt Berklund
Director

Bureau of Land Management
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Summary

Draft ( ) Final (X) Environmental Statement

Department of the Interior, Bureau of Land Management

1. Type of Action: Administrative (X) Legislative ( )

2. Brief Description of Action: The proposed action is issuance of a preference-right phosphate lease to U.S. Gypsum Company. The lease will allow mining of phosphate on 2,434 acres in the Los Padres National Forest, Ventura County, California over an estimated 50-year period. A processing plant will be constructed adjacent to the lease area.

3. Summary of Environmental Impact and Adverse Environmental Effects: The proposed action will adversely impact wildlife, particularly threatening the Condor, air quality, soils, vegetation, aesthetics, recreation, land use, traffic on State Route 33, and the Ventura County General Plan. The mining proposal would result in the permanent removal of 30,000,000 tons of phosphate ore.

4. Alternatives Considered:

   A. Deny the lease application (No Action).
      1. Gypsum claims invalid
      2. Gypsum claims valid

   B. Delay action.

   C. Issue lease, but don't allow the processing plant to be located on Federal land.

   D. Lease with delayed authorization to mine.

   E. Alternative sources or reduction of the use of phosphate.
      1. Reduce consumption of phosphate.
      2. Reduce export and reallocate existing supplies.
      3. Increase production from existing sources or import phosphates.
      4. Development of offshore deposits
      5. Phosphate recycling
      6. Substitute sources

   F. Legislation.

5. Comments on the draft statement were received from the agencies listed on the reverse side.

6. Date Statement Made Available to CEQ and the Public:
   Draft Statement: July 12, 1971
   Final Statement:

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The following federal, state and local governmental agencies were contacted in the preparation of the draft environmental statement.

1. Federal Agencies:

Department of Agriculture
*Forest Service
Division of Plant Science Research

Department of Commerce
National Oceanic and Atmospheric Administration

Department of Defense
*Corps of Engineers

*Environmental Protection Agency

*Department of Health, Education and Welfare

Department of the Interior
Bureau of Mines
*Geological Survey
Fish and Wildlife Service
*Bureau of Outdoor Recreation

Department of Transportation
National Transportation Safety Board

2. State Agencies:

*Office of the Governor, Office of Planning and Research (State Clearinghouse)

The Resources Agency

California Air Resources Board

Department of Water Resources

CALTRANS

*Environmental Quality Study Council

3. Local Agencies:

Southern California Association of Governments

*The Ventura County Air Pollution Control Districts

* Agencies submitting comments on the proposal

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DEPARTMENT OF THE INTERIOR

FINAL
ENVIRONMENTAL STATEMENT

PROPOSED
PREFERENCE RIGHT PHOSPHATE LEASE
LOS PADRES NATIONAL FOREST, CALIFORNIA

Prepared by

Bureau of Land Management
Department of the Interior

Curt Berklund
Director

Bureau of Land Management
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Denver Service Center

PREFERENCE RIGHT PHOSPHATE LEASE

LOS PADRES NATIONAL FOREST

FINAL ENVIRONMENTAL STATEMENT

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I. DESCRIPTION OF THE PROPOSAL

THE UNITED STATES GYPSUM COMPANY, HOLDER OF A PHOSPHATE PROSPECTING PERMIT, HAS APPLIED TO THE BUREAU OF LAND MANAGEMENT FOR A PREFERENCE RIGHT LEASE ON 2,434 ACRES IN THE LOS PADRES NATIONAL FOREST IN SOUTHERN CALIFORNIA. ISSUANCE OF A LEASE WOULD AUTHORIZE EXTRACTION OF PHOSPHATE ORE BY SURFACE MINING METHODS PROPOSED BY THE APPLICANT AND DESCRIBED BELOW.

A. Action Under Consideration

The purpose of this statement is to identify and analyze the environmental impacts that would result from issuance of the proposed lease. A phosphate prospecting permit was issued by the Bureau of Land Management, with the consent of the Forest Service, to the U. S. Gypsum Company in 1964. The area included in that prospecting permit and the pending lease application (2,434 acres) represents 0.1% of the total public land acreage (1,750,000) within the Los Padres National Forest.

The discovery of valuable deposits of phosphates under the authorization of a prospecting permit entitles the permittee to a preference right mineral lease under such conditions as the Secretary of the Interior deems proper. Mineral leases on National Forests are administered by the Department of the Interior, but may include mining and reclamation requirements recommended by the Forest Service to protect nonmineral resources.

Identification of the environmental impacts requires development of an accurate projection or concept of the mining and processing operations. This is done from information gathered from the applicant and other sources. The remainder of Section I is intended to provide the reader with detailed information that is considered relevant in identifying and evaluating impacts of the action under consideration.

B. Phosphate Leasing Procedures

1. Authority (Laws, Regulations and Policies)

Phosphate deposits on public lands are leased under the authority of sections 9 to 12, inclusive, of the Mineral Leasing Act of February 25, 1920 (41 Stat. 440, 441; 30 U.S.C. 211-214) as amended. The Secretary of the Interior may make rules and regulations necessary to carry out the provisions of the Act. The regulations pertaining to leasing phosphate are contained in 43 CFR Part 3500 (Appendix A).

The Mineral Leasing Act of 1920 authorizes the Secretary of the Interior to "lease to any applicant qualified under this chapter, through advertisement, competitive bidding or such other methods as he may by general regulations adopt, any phosphate deposits of the United States, and lands containing such deposits * * *" 30 U.S.C. §211(a) (1970).

If prospecting or exploratory work is necessary to determine the existence or workability of the phosphate deposit, the Mineral Leasing Act also authorizes the Secretary to issue to qualified applicants a prospecting permit. 30 U.S.C. §211(b) (1970). The prospecting permit gives the permittee the exclusive right to explore for phosphate in the permit area.

The Mineral Leasing Act says: "[I]f prior to the expiration of the permit the permittee shows to the Secretary [of the Interior] that valuable deposits of phosphate have been discovered within the area covered by his permit, the permittee shall be entitled to a lease for any or all of the land embraced in the prospecting permit." 30 U.S.C. §211(b). On May 7, 1976, the Department issued regulations defining valuable deposits (See Appendix C). Under these regulations, the Department must issue a lease to a permittee who has shown that he discovered a phosphate deposit of such quantity and quality that a prudent man would expend his labor and means to develop a valuable mine. All costs must be considered including the cost of complying with lease terms and environmental protection regulations.

The leases issued under either 30 U.S.C. §211(a) or (b) are for a term of 20 years, and as long thereafter as the lessee complies with the terms of the lease. At the end of the 20-year period, the Secretary may readjust the terms. A copy of Phosphate Lease Form 3160-1 is included in Appendix B.

Each lease is conditioned upon payment of specified royalties and rentals to the United States. The amount of these royalties shall be fixed by the Secretary in advance of offering the leases but may not be less than five percent of the gross value of the output. Each lease must also provide for payment of an annual rental, payable at the beginning of the lease year, of not less than 25 cents per acre for the first year, 50 cents per acre for the second and third years, and one dollar per acre for each year thereafter. Rental is credited against royalties as they occur during the lease year. Each lease must contain provisions to protect the interest of the United States, to safeguard the public welfare, and to insure exercise of care and diligence in the operation of the leasehold and also certain provisions relating to health and safety (30 U.S.C. §187). Failure to comply with the lease terms is a basis for termination of the lease by court action.

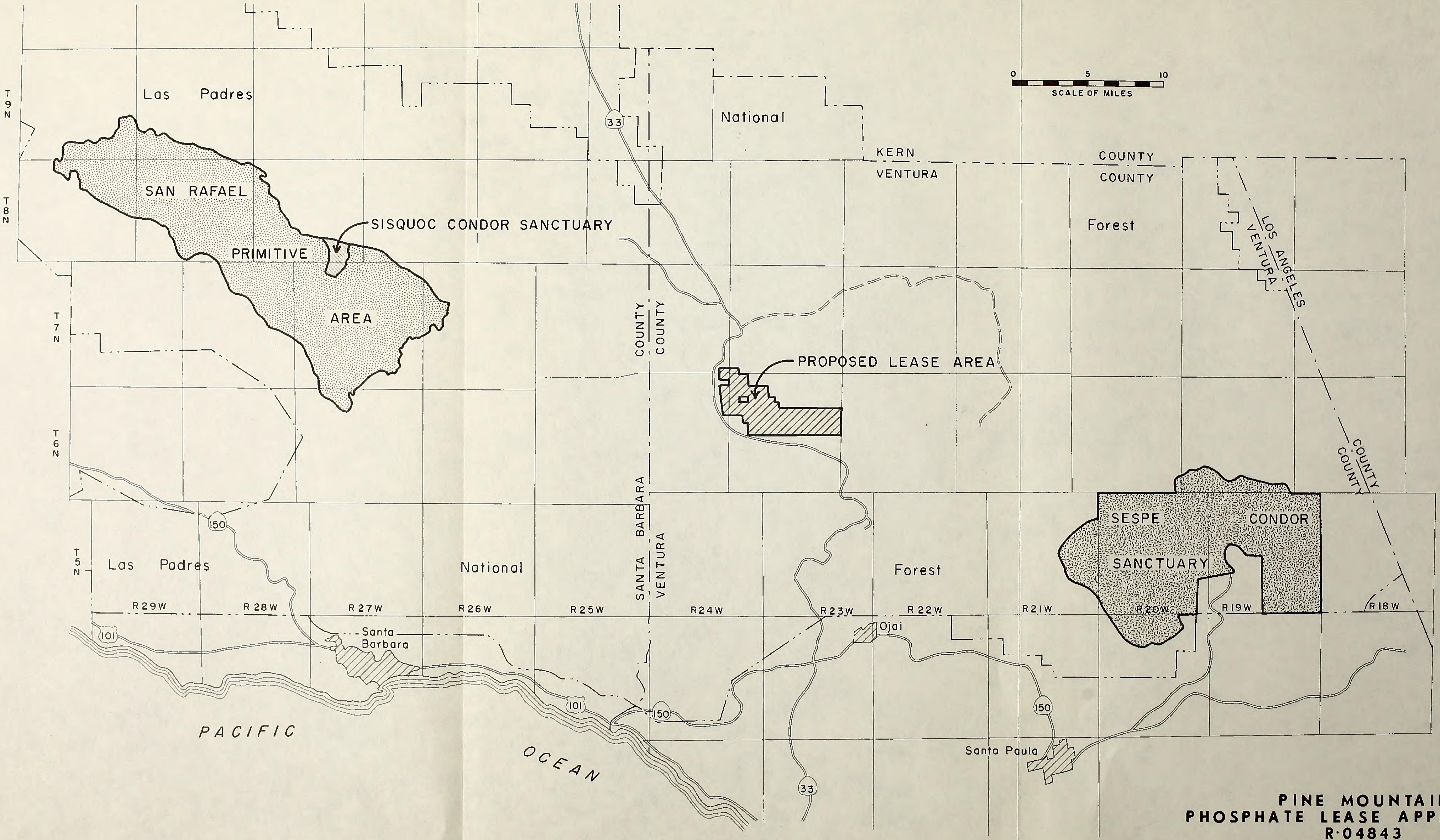
Of the monies received by the Federal Government from lease bonuses, rentals, and royalties, 37-1/2 percent is paid to the State in which the leased lands are located. These funds must be used for public roads and public education.

A bond of not less than $5,000, conditioned upon compliance with all conditions of the lease, must be furnished on all leases issued (43 CFR 3504.2).

Regulations (43 CFR Part 23) provide for protection of nonmineral resources during operations for discovery and development of minerals under permits and leases issued under the Mineral Leasing Act. The regulations require that a technical examination be made of prospective surface exploration and mining operations and that, based on the examination, requirements be included in the lease or permit to assure protection of nonmineral resources and the environment. When the lands are administered by another agency, in this case the Forest Service, that agency must be contacted for its recommendations as to what conditions should be included. Under the operating regulations (30 CFR 231) exploration and mining plans must be approved by the Geological Survey before operations commence on permit or lease lands. A bond adequate to cover reclamation requirements must be filed.

2. Administration

Recommendations and decisions with respect to phosphate prospecting permits and mining leases on the Los Padres National Forest are the responsibility of the Forest Service, the Geological Survey and



PINE MOUNTAIN
PHOSPHATE LEASE APPLICATION
R-04843
VICINITY MAP

the Bureau of Land Management. These responsibilities are briefly described as follows:

The Forest Service's (FS) responsibility is management of the National Forest surface resources in accordance with Federal statutes and directives of the Secretary of Agriculture. This includes advance consideration of the effects of issuing prospecting permits which may become preference right leases. The Forest Service supervises all authorized surface uses of the National Forest, and issues special stipulations to protect surface values.

Department of the Interior Secretarial Order 2948 issued in October 1972 established the role of the Geological Survey and the Bureau of Land Management (BLM) concerning mineral leasing and subsequent exploration and development activities on Federal lands. The Bureau of Land Management is responsible for issuing the lease and is the office of record in mineral leasing matters. Collection and deposits of rentals and bonuses are made by BLM on nonproducing leases.

The Geological Survey (GS) is responsible for all geologic, engineering and economic value determinations which include amounts of bonds, royalties, unit values, rentals, reserves and lease administration relating to mineral operations under the lease terms. GS will refer to BLM any instances of noncompliance with lease terms requiring cancellation action, and BLM will initiate the necessary action. GS collects rentals and royalties on producing leases.

C. Relationship to Other Federal Actions

On June 1, 1969, the U.S. Gypsum Company filed two additional prospecting permit applications, R-2339 and R-2340, embracing a total of 4,934 acres of land surrounding that included in the lease application (See Map 2).

It was recognized at the time of preparation of the EIS that these two applications were pending. During analysis of whether or not to consider these applications, along with the preference right lease application, it was determined that the prospecting permit applications would be held in abeyance until the environmental analysis on the lease application was completed. The geographic area covered by the prospecting permits is part of the land area which is the subject of this EIS. The environmental analysis and data developed in the statement will aid the Department in determining the manner in which the prospecting permits will be handled.

In order to mine and process the phosphate ore, several facilities are required that will be located on National Forest lands outside the lease (R-04843) area. An electric power distribution line, the ore processing plant, the access road, water supply wells, the sewage treatment plant, the treated wastewater storage pond, the tailings disposal site, administrative offices, and a vehicle marshalling and parking area will be located on National Forest lands outside the lease area, and will require either a Special Use Permit or easement from the Forest Service prior to construction or operation.

D. Background

During the early 1960's the U. S. Gypsum Company prospected the gypsum outcrops in the subject area and, based upon their findings, acquired fourteen lode mining claims and eleven placer mining claims, of 100 acres each, from the original locator. The lode claims were located in 1961 and the placer claims, which overlap most of the lode claims, were located in 1963. Portions of three lode claims invade privately owned land in sections 6 and 7 as a precaution against possible boundary adjustments due to any future surveys. Approximately 60% of the applied for land is encumbered under the General Mining Law of 1872. However, leasable minerals in lands covered by mining claims may be acquired under the mineral leasing laws.

The proposed action under consideration is the issuance to the U. S. Gypsum Company of a preference right lease covering 2,434 acres of land, situated in the Los Padres National Forest, Ventura County, California. A prospecting permit for this area was issued to the permittee for a two year period, effective November 1, 1964. By decision dated October 17, 1966, the permit was extended for a three year period through October 31, 1969. On April 15, 1969, the permittee filed an application (Riverside 04843) for a preference right lease.

A draft environmental impact statement on the subject application was submitted to the President's Council on Environmental Quality on July 12, 1971. A public hearing was held at the Ventura College Theatre, Ventura County, California on July 27-28, 1971.

E. Description of Proposed Phosphate Operation

1. Mineral Deposit

The phosphatic deposit extends as a more or less continuous band for a distance of about five miles along the south slope of the Pine Mountain ridge (see Map 7), at roughly the 5,000 foot elevation, running generally northwest to southeast. This band crosses Godwin, Chorro Grande, Burro and Munson Creeks. This deposit, and the overlying gypsum, is exposed on the surface, but dips about 30 degrees to the north. Therefore, the exposed width of the entire phosphatic deposit varies from 1,000 to 2,000 feet.

The true thickness of the deposit is much less than the exposed width. The phosphatic deposit is about 300 feet thick in the area of the lease application. It is the central 90-foot section of this deposit which is indicated as comprising the ore zone. The ore is composed of soft sandstone (mostly quartz), with about 30 percent of its mass consisting of tiny grains of phosphorite [carbonate fluorapatite - $Ca_5(PO_4)_3F$]. The U. S. Gypsum Company has calculated 25 million tons of proven reserves (known ore body, established by core drilling and trenching) plus an additional 75 million tons of possible and probable reserves (inferred ore body). The 100 million tons of total estimated reserves is the equivalent of 7-1/2 million tons of 100% phosphorous pentoxide (P_2O_5). The alleged ore zone is stated by the Company to average 8.3%(P_2O_5). These estimates are based upon a cut slope ratio of 1:1, an average depth of cut of 200 feet with a maximum of 400 feet, and the horizontal dimensions of the phosphatic deposit.

2. Timeframe and Scope of Development

The probable life of the operation, based upon the estimate of proven reserves, is 50 years. This is based upon the Company's average annual mining rate of 588,000 tons and assumes that nearly 30 million tons of ore will be extracted. If a total of 100 million tons were mined, the operation could be extended for an additional 120 years at the projected rate of production. There appears to be a moderate to good probability that the operational life of the ore body could extend beyond 100 years.

The probable reserves were estimated on the basis of geological inference and it is unclear, at this time, how much of these reserves will prove economically operable.

Lending credence to the projected 50 year operating life estimate is the fact that the company plans to mine 6 quarries, each of which are expected to have a life of 8 to 10 years, on the lease area. Some additional mining may take place on the block of private lands in Section 6 and 7.

The development would be geared to meeting western domestic market demand for the various phosphate compounds and other by-products produced at the plant site. The penetration of western phosphate rock in eastern U. S. markets traditionally supplied by Tennessee, Florida and North Carolina will occur toward the end of the century when the probable mine capacity of these eastern deposits will decline. In addition, the reserves of phosphate rock in the Western States are not being consumed at a significant rate and appear adequate to also supply phosphorous to the Western United States well beyond the year 2,000. Price increases can be anticipated, and increases in domestic and export market growth rates are expected. This situation, plus the possibility of technological improvements in mining and ore processing, indicate that the proposed operation would relate favorably to other phosphate development.

3. Plant Complex and Mine Layout

The plant complex generally lies south of the mine quarries, along Chorro Grande Creek (Map 1). The gypsum storage area, the spoil piles, and the crushing and rock storage area, lie within the proposed lease. The tailings disposal area will occupy a westerly trending side canyon outside the lease area that drains into Godwin Creek. The ore processing plant, administrative offices, sewage treatment plant, wastewater storage pond, and vehicle marshalling and parking areas, all lie south of the lease area along Chorro Grande Creek. The main access road generally follows the course of Chorro Grande Creek, joining State Route 33 northwest of the junction of Chorro Grande and Sespe Creeks. These facilities are shown in greater detail on the detailed plant layout map (Map 1).

The basic design of the mine is a series of open pits (quarries) running parallel to the strike of the phosphate deposit. The quarries will not extend across the intervening channels of Godwin, Chorro Grande, Burro, or Munson Creeks, but will occupy the higher elevations between these drainages. An estimated gross area of 217 acres will be occupied by the processing plant and ancillary facilities. Mine quarries will occupy a total of 276 acres (each quarry will involve 40 - 50 acres).

Facility	Area (Acres)
Area "A" - office, truck marshalling	6
Area "B" - processing plant	5
Area "C" - crusher	8
Area "D" - gypsum storage	9
Area "E" - wastewater treatment	1
Area "F" - tailings disposal	120
Area "G" - contoured spoil pile	13
Area "H" - north spoil pile	9
Area "J" - main access road	41
Mine service and ore haulage roads	5
Total	217

4. Proposed Development

a. Mining Operation

As stated above, the total proven reserves are approximately 30 million tons of phosphate ore. If mined at the present planned average rate of 588,000 tons per year, the proven reserves would be mined in about 40 to 50 years. The assumed life of the operation is, for purposes of this assessment, 50 years. Probable and possible reserves, estimated primarily through geological inference, total about 75 million tons. If all known, probable and possible reserves are included, mining could be sustained for a maximum of 170 years, assuming the current planned rate of extraction. The United States Gypsum Company's plans are based upon approximately a 50 year operating life for the mine.

Mining will begin in the number P1 quarry, located west of Chorro Grande Creek and to the immediate west of the crushing and rock storage area (Map 1). Mining will progress from Number P1 quarry to Number P2 quarry, located immediately east of Chorro Grande Creek, and then proceed through two additional quarries located west of quarry Number P1. The last quarry to be mined will be quarry Number P3, which will be to the east of quarry Number P2.

Each quarry is expected to have a life of 8 to 10 years. The dimensions of the quarry will be determined by the distance between drainages, since the general overall mining plan calls for no mining within approximately 200 feet of existing drainages. The length of each quarry, therefore, will be approximately 2,000 feet. Maximum pit width is estimated at 900 feet, and depths of cut will vary from 200 to 400 feet, depending upon the dip of the formation and the amount of overburden involved in each mining block.

Each pit will be "V" shaped in cross section. One limb will follow the footwall of the ore zone at approximately 30 degrees from the horizontal. The other limb, or highwall, is planned to be cut at 45 degrees (1:1 slope), and will be worked in a series of benches for increased safety and slope stability. The benches will be approximately 30 feet in height and 30 feet in width. The amount of ore mined annually will be approximately 588,000 tons, requiring removal of up to 1,800,000 tons of overburden a year - the ratio of overburden removed to ore mined is 3:1.

Mining and stripping operations will ordinarily run concurrently. As the overburden is stripped, it will be placed in the mined out portions of the pits. During the first 5-1/2 years, the start-up period, the overburden from quarry Number P1 will be placed in two contoured spoil piles. One, located about 200 feet southwest of the quarry, will occupy 13 acres (map 1,G). A second spoil pile, comprising 9 acres, will be emplaced about 200 feet northeast of the quarry (Map 1,H).

The total area disturbed by mining at any one time is estimated to be 40 acres. About 5 acres will be stripped of overburden each year and an additional 5 acres will be mined each year. A total of about 200 acres will be excavated during the life of the operation.

Blasting will not be required during the first 10 years of operation, because the overburden in quarry P1 has a low gypsum content. Blasting will be necessary to fracture the 30 foot thick layer of gypsum that overlies most of the ore zone in the other quarry areas. Blasting will not be a daily occurrence. The company estimates that blasting will be required about 3 times per week, or 150 times per year. Plans are to use 1,000 pounds of ANFO (ammonium nitrate - fuel oil) explosive per shot. The Bureau of Mines has calculated some of the typical parameters of this type of blasting operation. Typical blasting rounds for a 30 foot bench, using either 2 or 3 inch blastholes, would be similar to the following:

Hole size	3 in	2 in
Burden	7-1/2 ft	5 ft
Spacing	13 ft	9 ft
Subdrilling	2-1/2 ft	2 ft
Stemming	5 ft	4 ft
Charge length	27-1/2 ft	28 ft
Charge density	2.75 lb/ft	1.25 lb/ft

Assuming ANFO is used with a specific gravity of 0.9
Charge wt/hole

assuming 1000 lb of ANFO per blast:

Holes/blast	13-14	28-29
Holes/delay	4-5	11-12
Charge wt/delay	300-400 lb	400 lb

The last item, charge weight/delay, is the most important because ground vibration amplitude and air blast depend on this quantity and not total charge weight. The effect of adding more delays, and thus more explosive, is to increase the duration of the vibration.

The remainder of the overburden is capable of being ripped. All movement of overburden to the spoil areas and mined out pits, and of ore to the crusher will be by rubber-tired, self-loading scrapers and front-end loaders. Five to eight of these vehicles will be in operation at any one time.

b. Processing

The processing operation is designed to convert the phosphorous from an insoluble to a soluble form and to concentrate the phosphate in the ore. The processing plant will operate on a 7 day per week schedule, for a total of 330 days per year. The general outline of the process is as follows: the ore mined is placed in a surge pile at the crushing plant and is run through the crusher; the crushed ore is conveyed to the processing plant where it is converted to dicalcium phosphate and phosphoric acid; tailings from the processing plant are conveyed to the mined out pits (during the initial start-up period, tailings will be conveyed to a separate tailings disposal area); the products produced from the plant are shipped directly to market; by-product gypsum is stockpiled and marketed when feasible.

Ore Crushing and Storage

The ore is transported by rubber-tired equipment from the mine quarries to a working surge pile, ahead of the primary crusher (Map 1, C2). The ore will be transported in a dry state to eliminate moisture which could cause screening problems. At the primary crusher, the ore is reduced to a -2 inches in size.

PHOSPHATE PROCESS FLOW DIAGRAM

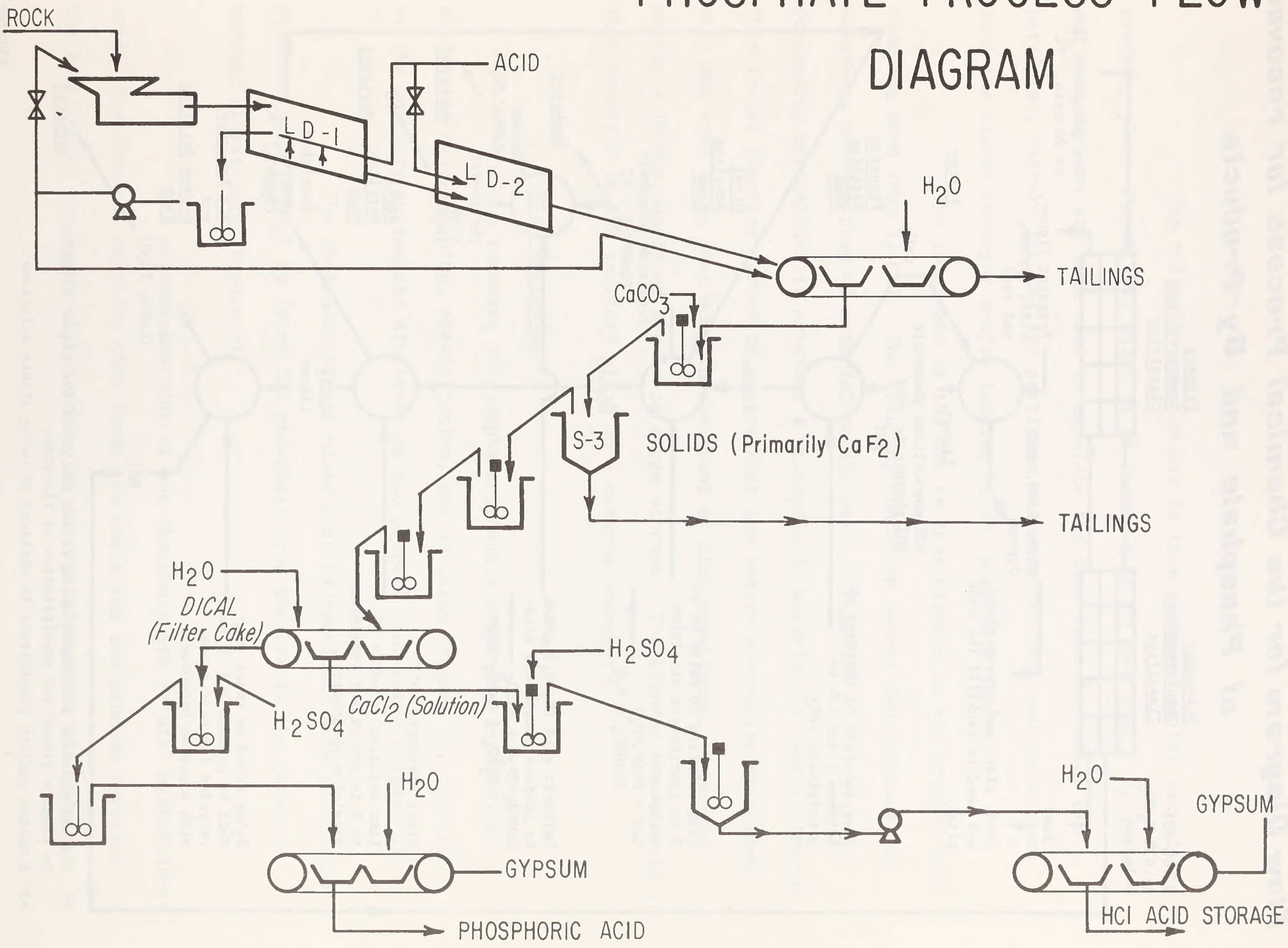
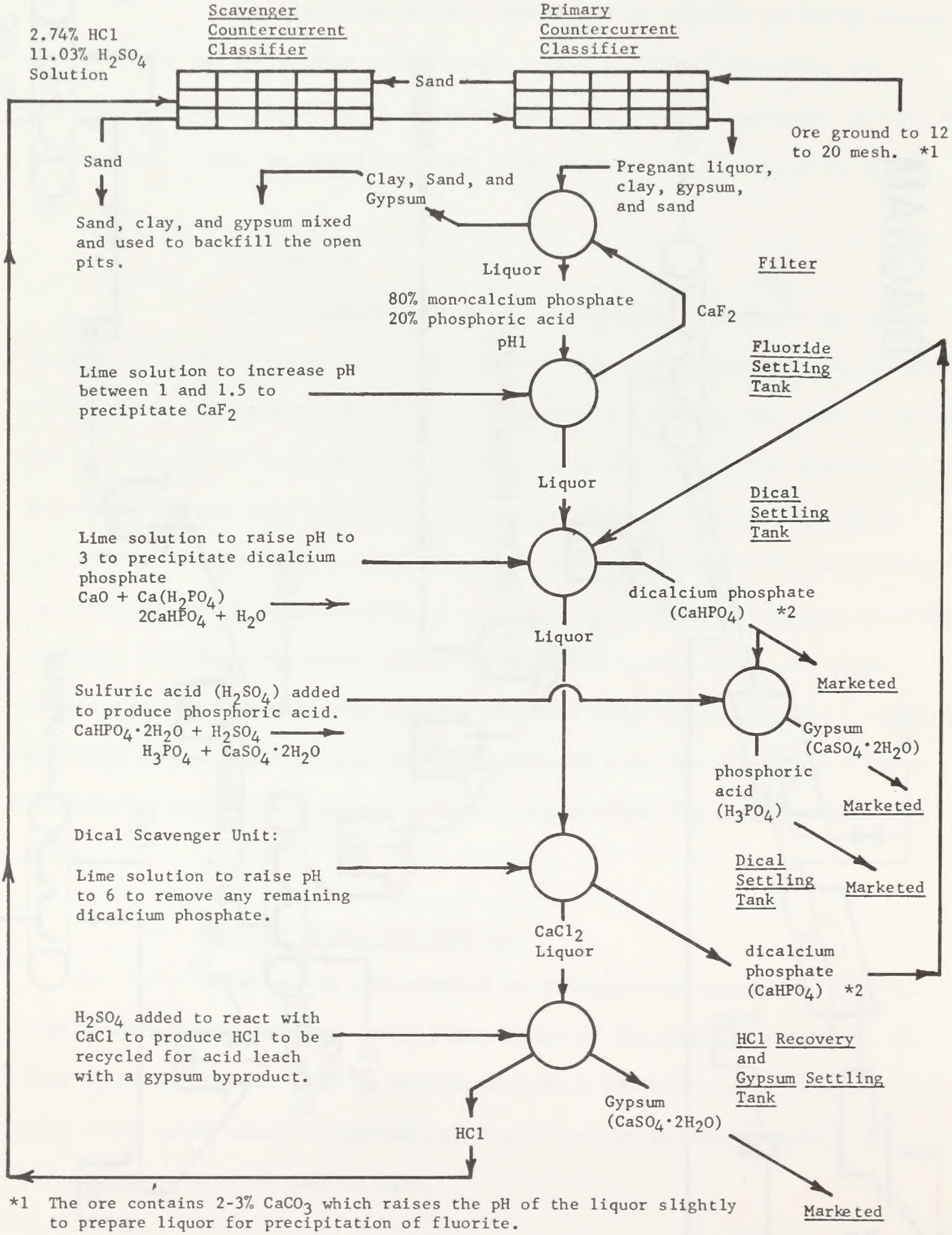


FIGURE 1

Flow Diagram for the Chemical Process for recoverey of Phosphate and By-Products


2.74% HCl
11.03% H_2SO_4
Solution
Scavenger Countercurrent Classifier
Sand
Primary Countercurrent Classifier
Ore ground to 12 to 20 mesh. *1
Sand
Sand, clay, and gypsum mixed and used to backfill the open pits.
Clay, Sand, and Gypsum
Pregnant liquor, clay, gypsum, and sand
Filter
Liquor
80% monocalcium phosphate
20% phosphoric acid
pH1
CaF_2
Fluoride Settling Tank
Lime solution to increase pH between 1 and 1.5 to precipitate CaF_2
Liquor
Dical Settling Tank
Lime solution to raise pH to 3 to precipitate dicalcium phosphate
$CaO + Ca(H_2PO_4) \rightarrow 2CaHPO_4 + H_2O$
dicalcium phosphate ($CaHPO_4$) *2
Liquor
Marketed
Sulfuric acid (H_2SO_4) added to produce phosphoric acid.
$CaHPO_4 \cdot 2H_2O + H_2SO_4 \rightarrow H_3PO_4 + CaSO_4 \cdot 2H_2O$
Gypsum ($CaSO_4 \cdot 2H_2O$)
Marketed
phosphoric acid (H_3PO_4)
Marketed
Dical Scavenger Unit:
Lime solution to raise pH to 6 to remove any remaining dicalcium phosphate.
Dical Settling Tank
$CaCl_2$ Liquor
dicalcium phosphate ($CaHPO_4$) *2
H_2SO_4 added to react with CaCl to produce HCl to be recycled for acid leach with a gypsum byproduct.
HCl Recovery and Gypsum Settling Tank
HCl
Gypsum ($CaSO_4 \cdot 2H_2O$)
Marketed

*1 The ore contains 2-3% $CaCO_3$ which raises the pH of the liquor slightly to prepare liquor for precipitation of fluorite.

*2 A better quality precipitate is obtained by using dilute solutions.

FIGURE 2

The initially crushed ore is then conveyed to the secondary crushing plant (Map 1, C3) where it is screened to 20 mesh size. Cyclones and dust washers are then used to separate the dust from the larger ore particles, capture the smaller particles of phosphate ore, and cycle them into the closed conveyor system leading to the phosphate plant.

The remainder of the ore is then blended in the crushed rock blending shed (Map 1, C4). The blending operation serves two purposes; it ensures a uniform feed of material to the mill, a standard practice in all processing operations; it provides a stockpile of material for surge storage. This latter function serves to ensure that the entire processing operation will not have to be shut down in the event of mine breakdowns. Approximately a 10 day supply of ore is in surge storage. The blended ore mixture is then conveyed to the recovery plant on a covered conveyor.

Ore Processing

The recovery of phosphate products generally involves a process of acid leaching, precipitation, and settling (Figure 1). Details of the recovery system are displayed on the process flow sheet (Figure 2).

The phosphate ore is mixed with hydrochloric acid (H Cl) and sulfuric acid (H_2SO_4) to leach the phosphate from the ore in the countercurrent classifiers (Figure 2).

The primary leaching of the phosphate ore is with hydrochloric acid. The chemical reaction that forms the basis for the process involves the reaction of the hydrochloric acid with the apatite ore to add hydrogen ions to the phosphate radical (PO_4) and form phosphoric acid, monocalcium phosphate, and calcium chloride.

$$HCl + Ca_3(PO4)_2 \longrightarrow H_3PO_4 + Ca(H_2PO_4)_2 + CaCl_2$$

Sulfuric acid is also added to the leach process to regenerate the hydrochloric acid for leaching. The sulfuric acid reacts with the calcium chloride to produce gypsum and hydrochloric acid.

$$CaCl_2 + H_2SO_4 \longrightarrow CaSO_4 \cdot 2H_2O + H\,Cl$$

At this point, the phosphate is in solution and is next separated from the ore by filtration. The pregnant solution constitutes the filtrate. The solid tailings, consisting primarily of sand, clay and gypsum are removed from the process.

The composition of the pregnant liquor is about 20 percent phosphoric acid and 80 percent monocalcium phosphate, at a pH of about 1. Lime is added to increase pH and precipitate out calcium fluoride. Calcium fluoride (fluorospar) is an inert mineral that, if present in sufficient quantity, can be used as a flux in commercial uses. The quantities produced here are too limited, however, and the calcium fluoride will be disposed of in the tailings.

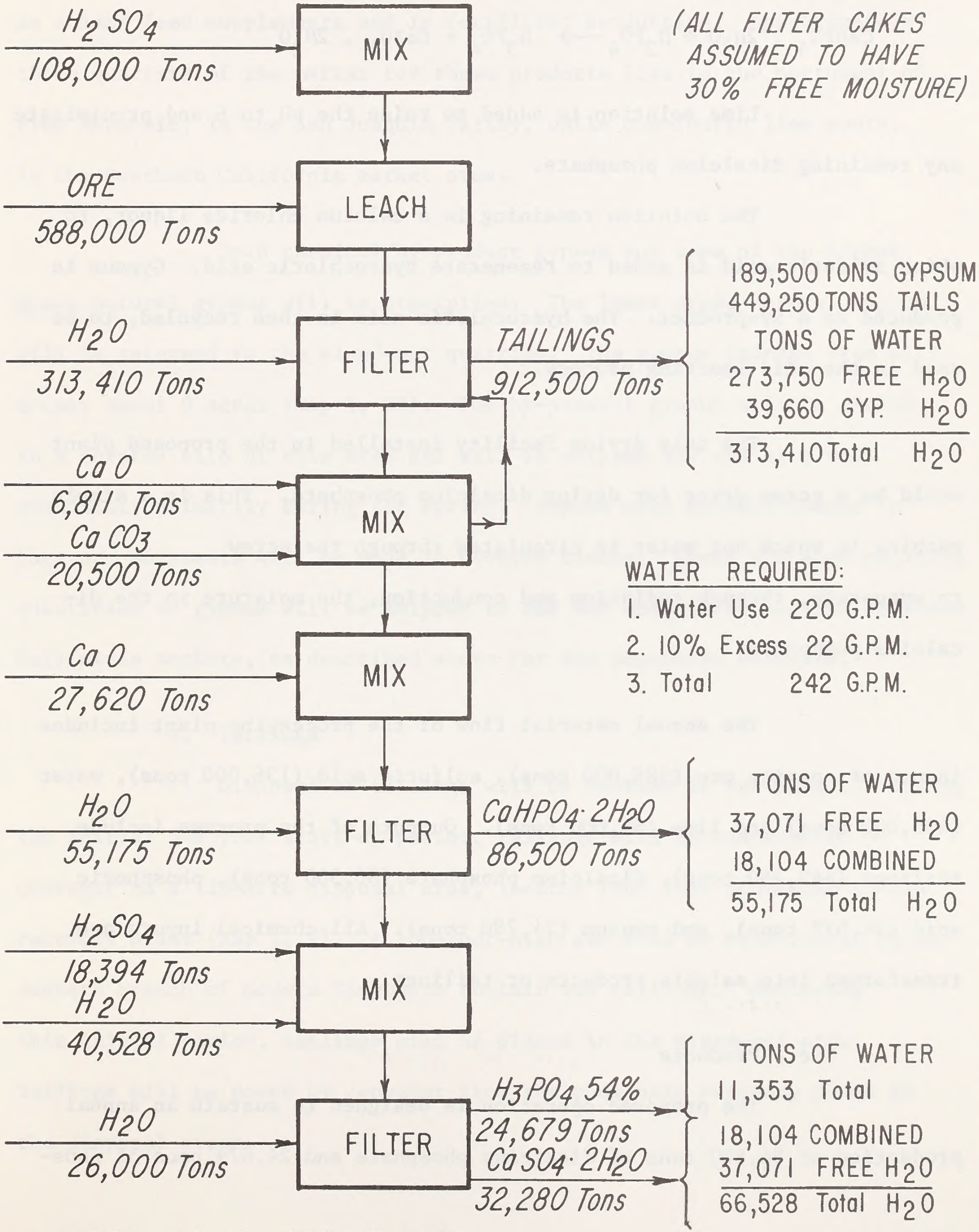
Additional lime is next added to raise the pH to about 3 and precipitate the dicalcium phosphate.

$$CaO + Ca(H_2PO_4)_2 \longrightarrow 2\ CaHPO_4 + H_2O$$

THEORETICAL MATERIAL BALANCE

50,000-TON / YEAR P_2O_5 PLANT

PINE MOUNTAIN ORE—8.5% P_2O_5



TOTAL WATER INPUT = 435,113 TONS

FIGURE 3

The dicalcium phosphate is converted to phosphoric acid and gypsum through reaction with sulfuric acid.

$$CaHPO_4 \cdot 2H_2O + H_2PO_4 \longrightarrow H_3PO_4 + CaSO_4 \cdot 2H_2O$$

Lime solution is added to raise the pH to 6 and precipitate any remaining dicalcium phosphate.

The solution remaining is a calcium chloride liquor, to which sulfuric acid is added to regenerate hydrochloric acid. Gypsum is produced as a by-product. The hydrochloric acid is then recycled, to be used in the acid leaching process.

The only drying facility installed in the proposed plant would be a screw dryer for drying dicalcium phosphate. This is a simple machine in which hot water is circulated through the screw to evaporate, through radiation and conduction, the moisture in the dicalcium phosphate.

The annual material flow of the processing plant includes inputs of apatite ore (588,000 tons), sulfuric acid (136,000 tons), water (435,000 tons) and lime (55,000 tons). Outputs of the process include tailings (449,250 tons), dicalcium phosphate (86,500 tons), phosphoric acid (24,679 tons), and gypsum (24,780 tons). All chemical inputs are transformed into salable products or tailings.

c. Products

The proposed operation is designed to sustain an annual production of 86,500 tons of dicalcium phosphate and 24,679 tons of phosphoric acid for a 50-year period. These products will be used primarily as animal feed supplements and in fertilizer production. Approximately three quarters of the market for these products lies to the northwest of Pine Mountain, in the San Joaquin Valley, while one-fourth lies south, in the Southern California market area.

Both chemical by-product gypsum and some of the higher grade natural gypsum will be stockpiled. The lower grade natural gypsum will be returned to the mined-out quarries. The gypsum storage area will occupy about 9 acres (Map 1, D2). The by-product gypsum will be stored in a covered silo at this area and will be shipped for use as a soil amendment, primarily during the spring. Gypsum will be bulk-loaded in bags and shipments will be made in covered trucks. About the same relative quantities of gypsum will be shipped to the San Joaquin Valley and Southern California markets, as described above for the phosphate products.

d. Tailings

Disposal of tailings will be handled in two phases. During the initial 5-8 year start-up period, tailings will be transported by conveyor to a 120-acre disposal area, located 1600 feet southwest of the recovery plant (Map 1, F). A 100-foot-high dam will be constructed on an eastern branch of Godwin Canyon to contain the tailings. Following this initial period, tailings will be placed in the mined-out pits. Tailings will be moved by conveyor from the phosphate recovery plant to the disposal areas.

On a quantitative basis, the tailings will consist primarily of insoluble quartz sand (45 percent by weight), gypsum (about 20 percent), and water (approximately 30 percent).

5. Chemical Constituents

The results of a spectographic analysis indicating some major constituents of the input and output, at various stages of the process, is shown in Figure 3. This is not a complete qualitative or quantitative analysis. Some of the elements (e.g. fluorine, sulfur) are driven off as gases, and are not susceptible to measurement by this type of spectographic analysis.

FIGURE 4: SPECTOGRAPHIC (SEMIQUANTITATIVE) ANALYSIS OF PINE MOUNTAIN MATERIALS

	Ore	Tailings
Ca-	9.2%	17.%
Si-	26.	24.
Mg-	0.69	0.65
P-	2.3	ND 0.50
Al-	6.8	8.3
Fe-	2.0	0.92
Na-	2.9	2.2
Ba-	TR 0.08	TR 0.08
Cd-	ND 0.006	ND 0.006
B-	0.0029	0.0029
Mn-	0.052	0.022
Ti-	0.28	0.46
Pb-	0.0074	0.010
Ga-	0.0060	0.0027
Cr-	0.028	0.025
Ni-	0.0024	0.0010
Mo-	TR 0.002	ND 0.002
V-	0.011	0.0071
Li-	ND 0.02	ND 0.02
Cu-	0.0030	0.00059
Zr-	0.021	0.015
Co-	ND 0.002	ND 0.002
Sr-	0.065	0.031
K-	4.2	1.3
Zn-	ND 0.04	ND 0.04
As-	ND 0.07	ND 0.07
Hg-	ND 0.09	ND 0.09
Other elements	nil	nil

TR = Trace
ND = Not determined, but less than -

6. Material Inputs and Storage

In addition to the annual input of 588,000 tons of phosphate ore, significant quantities of other materials will be required in the production process (Figure 4). These materials include sulfuric acid, water, and lime.

a. Sulfuric Acid

Sulfuric acid is used in the process to regenerate hydrochloric acid, and to produce phosphoric acid and gypsum. Daily consumption of sulfuric acid is estimated at 383 tons, or 50,175 gallons. Annual consumption would be approximately 126,400 tons.

Present plans call for no production of sulfuric acid on-site. Acid would be purchased and trucked from the railhead at Maricopa, utilizing 3300-gallon (50,000 pound payload) tank trucks. The acid would be shipped in concentrated form, -66° Baume (97 percent H_2SO_4). A 10-day supply of sulfuric acid, approximately 502,000 gallons, will be stored on-site (Map 1, Location B5). The acid will be stored in a closed, stainless steel tank, having a capacity of 593,000 gallons, and measuring 60 feet in diameter and 28 feet in height. This storage tank will be designed to withstand an earthquake of magnitude 6 on the Richter scale and will be surrounded by an earthen dike.

Acid will be pumped from the tank trucks to the storage tanks and from the tank to the recovery plant in 3-inch diameter lines. Shut-off valves will be employed, including one placed before the pump at the tank and another at the recovery plant.

b. Water

Water needs will initially be met from an existing well, in Section 9, adjacent to the ore crushing and storage area. To ensure the reliability of the water supply, additional wells will be drilled on an east-west line, downslope from the ore body. If de-watering the ore body proves to be necessary, some of the water requirements may be supplied from this source. Surface pipelines, running parallel to the ore haulage road, will be used to transport the water to a one million gallon storage tank (Map 1, Location C6).

The water used in the recovery process will flow in a closed system and that which is not consumed will be recirculated. Consumption of water in the recovery process is computed at 242 gallons per minute. This is equivalent to 1.068 acre-feet per day (348,480 gallons), or 390 acre-feet per year.

In addition to water consumed in the production process, water will also be used for disposal of sanitary wastes, human consumption, fire suppression and irrigation of reclaimed areas. The total estimated water use per day is estimated to be 500 gallons per minute, or 720,000 gallons per day. This equals 2.207 acre-feet per day, or 805 acre-feet per year.

c. Other Materials

Lime and calcium carbonate are also used in the production process. Approximately 34,400 tons of lime (CaO) will be consumed annually, along with 20,500 tons of calcium carbonate. A 10-day reserve of these

PINE MOUNTAIN PHOSPHATE PLANT
WATER SYSTEM

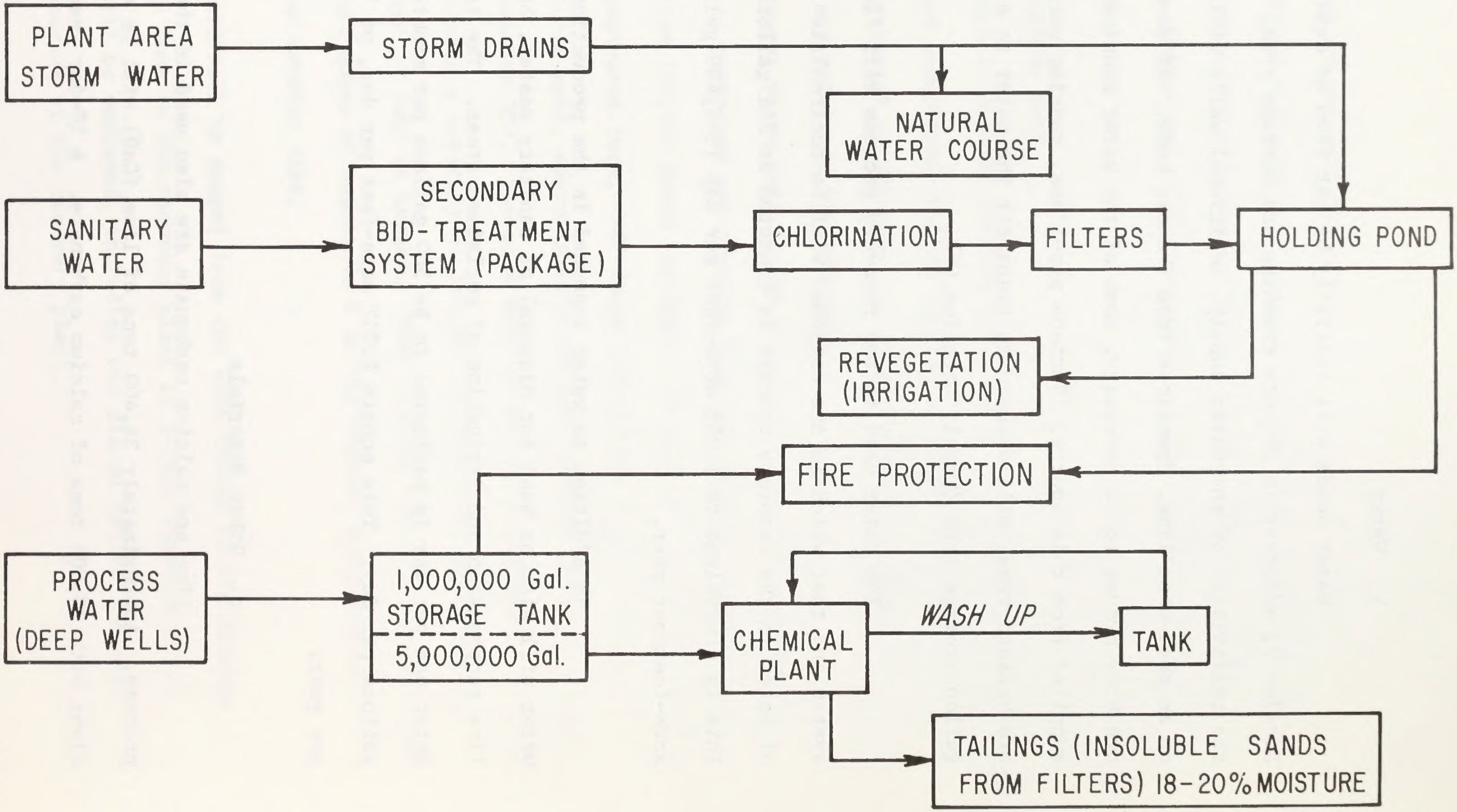

PLANT AREA STORM WATER
STORM DRAINS
NATURAL WATER COURSE
SANITARY WATER
SECONDARY BID-TREATMENT SYSTEM (PACKAGE)
CHLORINATION
FILTERS
HOLDING POND
REVEGETATION (IRRIGATION)
FIRE PROTECTION
PROCESS WATER (DEEP WELLS)
1,000,000 Gal. STORAGE TANK
5,000,000 Gal.
CHEMICAL PLANT
WASH UP
TANK
TAILINGS (INSOLUBLE SANDS FROM FILTERS) 18-20% MOISTURE

FIGURE 5

raw materials, or 950 tons of lime and 560 tons of calcium carbonate, will be stored on-site.

7. Electrical Power

The power requirement is estimated to be 10,000 KVA (kilovolt amperes), which will have to be transmitted at 33,000 volts. No location surveys have been made, although the Southern California Edison Company has been contacted. Forest Service approval will be required prior to construction of the powerline. The Forest Service has indicated that a separate Environmental Impact Statement will be needed prior to reaching a decision on permit applications. A transformer station will be required. Although there are no definite present plans, an auxiliary emergency generator may be required.

If it is not possible to purchase power, the applicant would have to install sufficient generating capacity. Tentative contingency plans assume that three diesel powered generators would be required, but the design parameters have not been established. It is assumed that two generators would be in continuous operation, while the third would be used as a standby power source. A 10-day supply of diesel fuel would be stored on-site, the quantity depending upon the design requirements of the generating equipment.

8. Wastewater System

The wastewater system is designed to handle sanitary wastes from the plant complex and storm runoff from the processing plant site. Sanitary wastes will be treated in a packaged secondary sewage treatment plant. Effluent from the treatment plant and storm runoff from the processing plant will be fed into a holding pond. The treated water from the sanitary system and storm drainage from the processing plant will then be used for irrigation of revegetated areas and as a reserve for fire control (Figure 5). Storm drainage from the remainder of the area will be diverted into the natural channel of Chorro Grande Creek.

Together, the treatment plant and wastewater holding pond occupy about 2 acres. The holding pond will cover approximately 1.3 acres, will be about 6 feet deep, and will have a capacity of 6.5 acre-feet. The packaged sewage treatment plant, as designed - assuming a 24-hour flow of 3750 gallons per day - will reduce BOD (biological oxygen demand) by 94.7 percent (from 335 mg/l to 18 mg/l) and suspended solids by 91.7 percent (from 244 mg/l to 22 mg/l). The packaged plant operates on the basis of aeration, settling, chlorination, and filtration. No untreated effluents will be discharged.

Water used in the processing plant will be recirculated in what is essentially a closed system. Some moisture will be emitted to the atmosphere in the drying process and a greater portion (approximately 950 tons/day) will be entrained in the tailings.

9. Air Emissions

Emissions will result from vehicles, mining, ore crushing, ore processing, and power generation equipment (if any is employed on-site). Emissions fall into two categories - gaseous emissions and particulates.

Gasses will be emitted by vehicles transporting products from the site and raw materials and personnel to the site. During most of the year, there will be a total of 70 round trips of trucks, hauling products from the site and raw materials into the site, per day. During a three-month period each spring, traffic will increase to 204 round trips per day (increase due to hauling gypsum). Additionally, six bus trips per day will be made to haul personnel to and from the site. Transport of products and raw materials will be on a 5-day per week basis, while personnel will be transported 7 days per week. All vehicles will be diesel powered.

The mining operation will employ 5 to 8 self-loading scrapers and front end loaders, all of which will be diesel powered.

These are the main consumers of diesel fuel. The process dryer will consume a small additional amount of fuel. On-site power generators would also consume fuel; however, this consumption is not included since there are no definite plans to utilize on-site power generation.

A total of 3,120 tons/year (1,117,990 gallons) of diesel fuel will be consumed. Assuming that vehicles will operate 250 days per year (dryers will operate 330 days per year, but consumption is relatively insignificant), daily consumption equals 4471 gallons. Utilizing data furnished by the Environmental Protection Agency on Federal standards for diesel power vehicles, the following schedule of emissions can be assumed:

FIGURE 6: ESTIMATED EMISSIONS FROM DIESEL POWERED EQUIPMENT

Type of Pollutant	Pounds per 1000 gal. diesel fuel	Daily Emissions (Lbs.)	Annual Emissions (Tons)
SO_x	27	121	15
CO_x	225	1006	126
NO_x	370	1654	207
Particulates	13	58	7
Other (water vapor, etc.)	43	192	24

The Environmental Protection Agency has indicated that emissions of fluorides can be expected in the acidulation process. About 60 percent of the fluorine in the rock is estimated to be converted to hydrofluoric acid, which in turn, reacts with the silica in the rock to form fluosilicic acid. The remaining 40 percent of the fluorine either remains insoluble or reacts to produce a solid that is removed from the acid with the gypsum. About 5 to 7 percent of the fluorine converted to fluosilicic acid is volatilized to gaseous fluorides in the digestor process.

EPA has established emission standards for fluorides in the August 6, 1975 Federal Register. Because of the different processes within the proposed development, the gaseous emissions of total fluorides cannot exceed 0.010 to 0.020 pounds for every ton of equivalent P_2O_5 feed. Based on the proposed site's mining rate and percent P_2O_5, the emissions of fluorides cannot exceed 1000 pounds per year (500 pounds per year for certain phases of the process). EPA has indicated from past experience with other phosphate plants using different processes that such a limitation on fluoride emissions may be difficult to attain.

Particulates will be emitted primarily in the mining and ore crushing operations. Mining will produce particulates from overburden removal, blasting, ripping and scraping, and loading and unloading the ore. During the processing stage, particulates will be emitted by the crushing operation. Cyclones will be employed for recovery of phosphate ore and dust control. It is not possible to quantify the particulate emissions from these processes.

Phosphate rock processing plants are subject to EPA regulations for the prevention of significant qir quality deterioration, as published in the Federal Register, December 5, 1974. These regulations mean that the increased concentrations of sulfur dioxide (SO_2) and total suspended particulates (TSP) in the nearest Class II area (less than 10 miles west of site) cannot exceed the deterioration increments of 10 micrograms per cubic meter (TSP) and 15 micrograms per cubic meter (SO_2) per annual geometric mean as a result of the phosphate plant.

Even though the proposed facility is located outside a Class II designated area, it will be submitted to EPA for a preconstruction review and be required to use the best available control technology (BACT) in its design and operation. As a condition to the review and approval process, the Administrator of EPA will establish an emission limit for the facility which would be achieved by the application of BACT. Under the new source performance standards, the operator of the facility must obtain a new source permit from EPA.

U. S. Gypsum has indicated that all air quality emission standards will be met.

10. Transportation

a. Access Road

An access road will be constructed from State Route 33 to the processing plant site, a distance of 1-1/2 miles. This will be a 24-foot, surfaced, two-lane road. The average grade will be 8 percent. It is estimated that this road will occupy approximately 20 acres, based on the following assumptions: surfaced width will be 24 feet and subgrade width will be 32 feet; cut slope will be angle of repose but no steeper than 1/4:1, while fill slope will be approximately 1 1/2:1.

b. Raw Material and Product Transport

While the processing plant will operate on a 7-day per week schedule for an estimated 330 days per year, hauling will take place on weekdays only, or about 250 days per year. The following table illustrates the number of loads per day that will enter and leave the processing plant site.

FIGURE 7: TRANSPORTATION OF MATERIALS

	Material	Ton/Year	Tons/Day(1)	Truckload Day(2)(3)
a)	Outgoing Produce			
	Dicalcium Phosphate	86,500	346	13.3
	Phosphoric Acid	24,679	99	3.8
b)	Incoming Materials			
	Sulfuric Acid	126,400	506	20.0
	Lime	34,431	138	5.3
	Calcium Carbonate	20,500	82	3.2
	Fuel Oil	3,120	12	0.5

(1) 5 days/week, 250 days/year
(2) Average 26 ton load
(3) Truckload equals 8600 gallons

Some of the product transport trucks will be used to backhaul materials into the site, so total truck traffic will be less than would be indicated by the number of loads shown above. Approximately 75 percent of the projects will be shipped north and 25 percent south on Highway 33. All of the sulfuric acid and most of the other raw material supplies will be shipped in from the north on Highway 33. Daily truck traffic on Highway 33 throughout the year is estimated at 62 trips (two-way count) north and 10 trips south, for a total of 72 trips per day.

During the months of April, May and June, an additional 32,280 tons of gypsum will be shipped annually. Truck traffic during these months will be approximately 114 round trips per day, three-quarters of which will be to the north and one-quarter to the south.

11. Personnel

Sixty to seventy people will be needed to operate the mine and processing plant. Of these, 20-25 will be employed in the mining operation, with the balance in ore processing, maintenance and clerical work. Most of these employees will be recruited locally. No housing will be constructed at the site; all employees will commute from Ojai, Ventura, and possibly the New Cuyama areas. All personnel will be bussed to and from the site. Six bus trips per day will be necessary.

The mining operation will be carried out on a 2-shift, 5-day week. The processing plant will operate on 3 shifts per day, 7 days per week.

II. DESCRIPTION OF THE ENVIRONMENT

A. Description of the Existing Environment

1. General Description of the Area

The proposed lease area is located about 50 air miles north of the Los Angeles metropolitan area, about 20 air miles northeast of Santa Barbara and about 25 air miles north of Ventura, California. It lies north of Highway 33, approximately 20 miles north of Ojai. It is between the Sespe and Sisquoc Condor Sanctuaries - about 15 air miles northwest of the Sespe Condor Sanctuary and about 20-25 miles south and east of the Sisquoc Condor Sanctuary, which is located in Santa Barbara County (Maps 2 & 3). The general area is quite mountainous and lies within the 156,000-acre Sespe Creek watershed. There are no industrial projects in the area. All of the adjoining lands are Federal (under the surface jurisdiction of the Forest Service), except for one 80-acre parcel and several small parcels of privately-owned lands scattered along Highway 33. There is a 140-acre parcel of privately owned land within the lease site.

2. Topography

The proposed lease area lies on a portion of the Transverse Ranges, a series of ranges connecting the southern extension of the Coast Range with the southern Sierra Nevada Mountains. These ranges have some of the highest rates of uplift in the world. Canyons are steep and relatively narrow, while ridges are generally narrow.

The proposed lease is located on the south flank of Pine Mountain, an east-west trending ridge several miles long that forms the division between a westward-flowing segment of the Cuyama River on the north and an eastward-flowing segment of Sespe Creek on the south. The proposed lease traverses all or part of five separate southward-flowing drainages that are tributary to Sespe Creek, from Munson Creek on the east end, westward across Burro Creek, Chorro Grande Canyon and Godwin Canyon, to Adobe Creek on the west end. The horizontal distance from the crest of Pine Mountain southward to upper Sespe Creek is approximately 3 miles, and the altitude drops from a little over 7,000 feet at the crest to approximately 4,000 feet at Sespe Creek--an overall local relief of about 3,000 feet.

3. Climate

The Transverse Ranges in Ventura County have a mild climate at the elevation considered here. The summers are dry and warm; winters are wet and cool. Summer temperatures in the 90's are common and winter temperatures are only occasionally below freezing. Most precipitation occurs as rainfall; however, some snowfall occurs at elevations above 3000 feet. Approximately 90 percent of the annual precipitation occurs in the 6-month period from November to April. The rest of the year can be characterized as just one long dry spell. Precipitation is highly variable. There may be almost no precipitation or there may be several times the mean annual precipitation in any given year. Climatological data are available at several locations near the proposed plant site and are indicative of the general conditions in the lease area.

Ozena guard station, 5 air miles north of the plant site on Highway 33 and at elevation 3600 feet mean sea level (msl), is on the north slope of Pine Mountain. Annual precipitation during the period 1931-1952 ranged from 3.24 to 29.29 inches; mean annual precipitation was 12.80 inches. Ojai, about 12 air miles south of the plant site on Highway 33 and at elevation 750 feet msl, had a mean annual precipitation during the same period of 20.96 inches. Annual precipitation at Ojai, 1931-1973, ranged from 4.35 to 45.73 inches; mean annual precipitation was 20.20 inches.

A rainfall station is operated by Ventura County near the crest of Pine Mountain, at elevation 6740 feet msl and about 9000 feet north of the proposed plant site. Precipitation during the 15-year period from 1957-1967, and 1968-1973 was 22.73 inches. The elevation at the proposed lease area ranges from 4600 to 5000 feet msl.

Piedra Blanco guard station, 10 air miles southeast of the plant site and at elevation 3065 feet msl, is located downstream on Sespe Creek. Precipitation at Piedra Blanco averaged 24.57 inches during the past 10 years. Rainfall may exceed 5.50 inches per day or 0.85 inch per hour during high intensity storms.

During 1969, a major storm period, the precipitation at the crest of Pine Mountain was 46.44 inches, Ojai was 45.73 inches, and Piedra Blanco was 62.28 inches.

Over a ten-year period the normal mean temperature at Ojai was

61.4° F., and the maximum was 112° F. The maximum temperature during the 54-year period on record was 119° F.

Because of the extremely strong local influence of terrain on wind direction, the airflow patterns in the vicinity of the proposed lease are not easily predicted. Forest Service meteorological records of fire weather observations, made at approximately 2:30 p.m. each day from June through December, illustrate the major effect of terrain on wind patterns.

Grade Station, located approximately 12 miles northeast of the proposed lease area, lies in a canyon having roughly a northwest-to-southeast orientation. The prevailing winds blow up- and down-canyon. At Thorn Point, 10 miles east of the lease site, prevailing winds are from the south about 80 percent of the time. Nordhoff Peak is located 8-1/2 miles south of the proposed lease area, at about 4500 feet msl. Here, prevailing winds are from the east and southeast about 70 percent of the time.

While the prevailing winds along Sespe Creek, below the proposed lease area, is probably up- and down-canyon in generally a northwesterly or southeasterly direction, prevailing winds in the lease area may be southerly. This is because of the possible influence on diurnal flow of the canyons, running south on the flanks of Pine Mountain. Without on-site observation stations, prediction of prevailing wind patterns is speculative, at best.

While unstable air conditions are typical of summer weather patterns, there may be inversions during early morning hours. Such temperature inversions may be more prevalent during winter months, but this cannot be conclusively determined in the absence of data.

4. Air Quality

Both the Federal government and the State of California have established standards for ambient air quality.

FIGURE 8: AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time	Concentration	
		California	Federal
Photochemical Oxidants	1 hour	0.10 ppm	0.08 ppm
Carbon Monoxide (CO)	12 hours 1 hour	10 ppm 40 ppm	- 35 ppm
Nitrogen Dioxide	1 hour Annual avg.	0.25 ppm -	- 0.05 ppm
Sulfur Dioxide	24 hours	0.04 ppm 0.5 ppm	0.14 ppm -
Suspended Particulate Matter	24 hours	100 ug/m^3	260 ug/m^3
Hydrogen Sulfide	1 hour	0.03 ppm	-
Visibility Reducing Particles	1 observation	Sufficient amount to reduce prevailing visibility to less than 10 miles, when relative humidity is less than 70%.	

The ambient air quality in the vicinity of the proposed lease has not been measured, but can be assumed to be of a generally high quality. Vehicles travelling along Highway 33 emit some gasses, but traffic is so low that the effect on air quality is minimal. It is doubtful that pollution from the coastal portions of the county significantly increase concentrations in the Pine Mountain area for any extended period of time.

Particulates released from wildfires are probably the single greatest potential source of pollutants. Occurrence of wildfires is intermittant, however, and they may not be a significant source in any given year.

5. Water

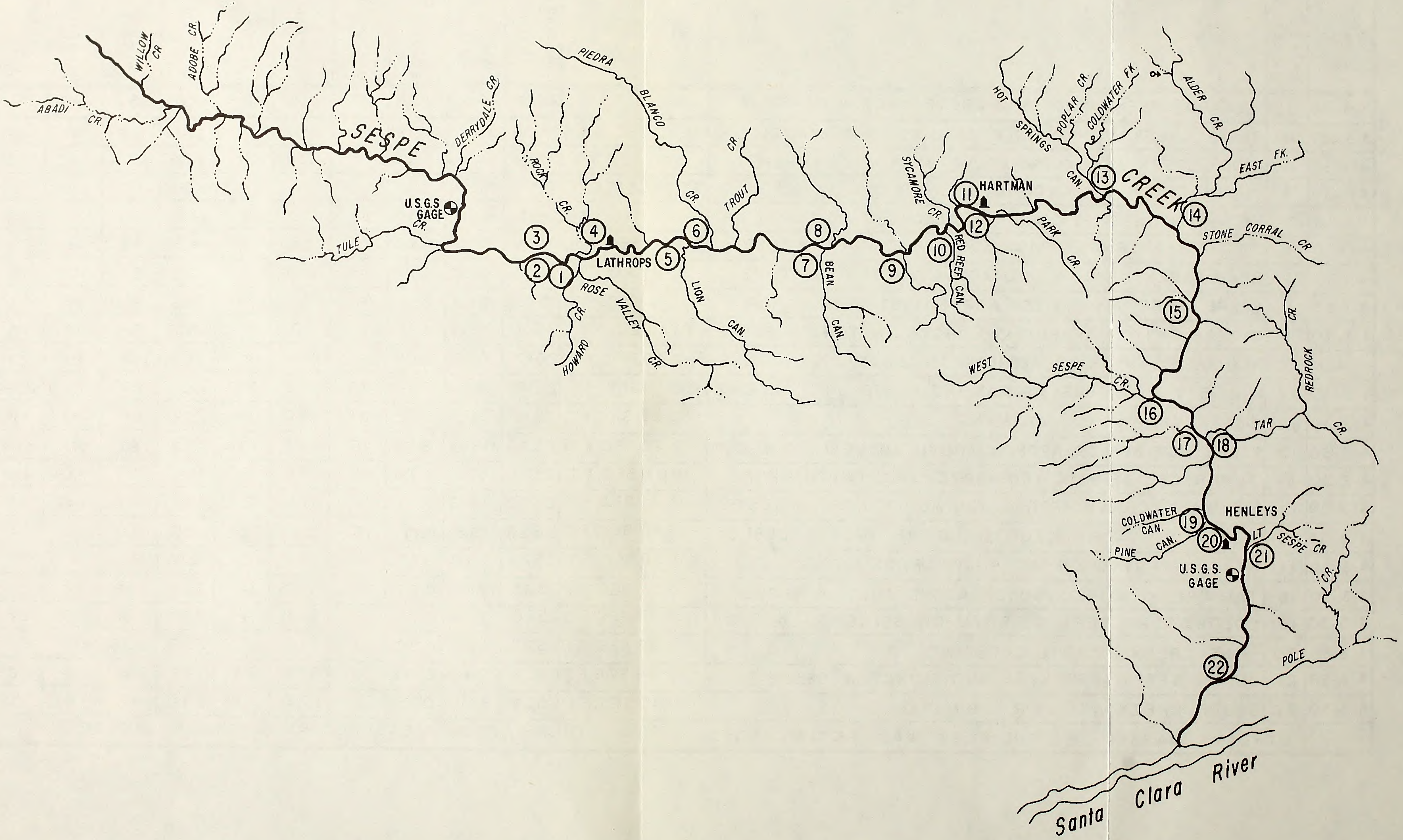
a. Surface Water

(1) Quantity

Sespe Creek, a tributary to the Santa Clara River, has a drainage area of 251 square miles. The proposed plant site is in the upper part of the basin and the lease area transverses all of part of five separate southward flowing tributaries to Sespe Creek. The drainage area of the tributaries is 14 square miles.

Streamflow stations are operated at Sespe Creek near Wheeler Springs, drainage area 49.5 square miles, and at Sespe Creek near Fillmore, drainage area 251 square miles.

The Wheeler Springs station is located in Sespe Gorge and is downstream from the proposed lease area. Records of daily flow,



WATER QUALITY ANALYSES - 1930
SESPE CREEK AND TRIBUTARIES

MAP 4

SESPE CREEK AND TRIBUTARIES

ANALYSES BY U.S. DEPT. OF AGRICULTURE LIMONEIRA LABORATORY

DATE	WATER SAMPLE NO.	LOCATION	QUANTITY	LAB. SAMPLE NUMBER	$K \times 10^5$ AT 25°	PARTS PER MILLION								
						BORON	CARBONATE	BICARBONATE	CHLORIDE	SULPHATE	CALCIUM	MAGNESIUM	ALKALI BASES	TOTAL SOLIDS
3-31-30	1	HOWARD CREEK, APPOX. 300' ABOVE JNCT. WITH SESPE	3.13 SEC. FT.	2508	41.1	0.14	27	125	2	70	52	16	12	304
3-31-30	2&3	SESPE CREEK AT PROPOSED COLD SPRINGS DAM SITE	11.40 SEC. FT.	2509	102	0.18	18	201	28	335	122	40	46	790
4-1-30	4	ROCK CREEK, APPOX. 150' ABOVE JNCT. WITH SESPE	0.60 SEC. FT.	2511	153	0.25	0	235	9	688	192	63	83	1270
4-1-30		SESPE CREEK AT LATHROPS	15.96 SEC. FT.											
4-1-30	5	LION CANYON CREEK, APPROX. 150' ABOVE JNCT. W. SESPE	4.54 SEC. FT.	2512	48.1	0.19	18	192	4	149	80	23	24	490
4-1-30	6	PIEDRA BLANCA CR., APPROX. 300' ABOVE JNCT. W. SESPE	5.58 SEC. FT.	2513	34.9	0.03	15	58	4	96	39	15	9	236
4-1-30	7	BEAR CREEK, APPROX. 200' ABOVE JNCT. WITH SESPE	3.01 SEC. FT.	2514	46.8	0.24	15	107	4	129	56	19	15	345
4-1-30	8	SESPE CREEK, APPROX. 150' ABOVE JNCT. W. BEAR CR.	NOT MEASURED	2515	66.5	0.14	6	137	14	206	67	31	30	491
4-1-30	9	TIMBER CANYON, APPROX. 150' ABOVE JNCT. WITH SESPE	1.73 SEC. FT	2516	49.0	0.11	15	88	4	154	58	27	14	354
4-1-30	10	RED REEF CANYON CR., APPROX. 150' ABOVE JNCT. W. SESPE	* 0.40 SEC. FT.	2517	84.2	0.09	6	241	4	264	119	35	23	692
4-2-30	11	WILLETT HOT SPRS., APPROX. 150' ABOVE JNCT. W. SESPE	* 0.10 SEC. FT.	2518	132	6.83	48	506	89	90	24	12	279	1048
4-2-30	12	SESPE CREEK AT HARTMANS	30.92 SEC. FT.	2519	71.3	0.22	21	146	11	221	85	29	32	545
4-2-30	13	SESPE HOT SPR. CR. APPROX. 300 YD. ABOVE JNCT. W. SESPE	2.20 SEC. FT.	2520	159	6.69	15	149	138	455	120	27	187	1091
4-2-30	14	ALDER CR. APPROX. 150' ABOVE JNCT. WITH SESPE	1.06 SEC. FT.	2521	67.1	0.70	12	159	9	189	63	26	44	502
4-2-30	15	SIDEWALK CREEK APPROX. 600' ABOVE JNCT. W. SESPE	0.41 SEC. FT.	2522	44.8	0.15	6	116	2	129	61	14	14	342
4-2-30	16	WEST FORK APPROX. 300 YDS. ABOVE JNCT. W. SESPE	3.49 SEC. FT.	2523	39.3	0.11	15	55	2	106	40	13	14	245
4-3-30	17	HEAVEN SPRING CR. AT ROAD CROSSING	* 1.50 SEC. FT.	2524	28.0	0.13	0	131	2	29	37	8	7	214
4-3-30	18	TAR CREEK APPROX. 50 YDS. ABOVE JNCT. W. SESPE	3.27 SEC. FT.	2525	120.0	0.22	24	226	12	426	156	44	54	942
4-3-30	19	COLDWATER CREEK AT ROAD CROSSING	0.53 SEC. FT.	2526	77.4	0.21	6	220	4	221	109	25	22	607
4-3-30	20	PINE CREEK AT ROAD CROSSING	0.99 SEC. FT.	2527	81.0	0.52	0	214	7	257	106	10	67	661
4-3-30	21	LITTLE SESPE, APPROX. 75' ABOVE JNCT. W. SESPE	0.54 SEC. FT.	2528	225.0	0.33	0	275	23	1149	346	27	220	2040
4-3-30	22	SESPE CREEK AT S.P.R.R. BRIDGE	61.15 SEC. FT.	2529	83.1	0.79	6	171	28	240	88	16	70	619

STREAMS MARKED *: THE FLOW WAS ESTIMATED; ALL OTHERS, FLOW MEASURED BY CURRENT METER

FIGURE 8A

which are available since 1948, indicate there is no flow about 7 percent of the time; in 1952 no flow occurred for more than 90 consecutive days. Streamflow equal to or less than 2 cubic feet per second (cfs) occurs about 70 percent of the time and occurs most years for more than 183 consecutive days.[1] Average discharge during the 24 years of record, 1948-1972, is 10.7 cfs (7,750 acre-feet per year) and the median flow is about 1.1 cfs (796 acre-feet per year). Peak discharge was 9,700 cfs on January 25, 1969.

Sespe Creek near Fillmore is located 3.5 miles north of Fillmore and near the confluence of Sespe Creek and Santa Clara River. No flow occurs some years; however, flow equal to or greater than 2 cfs (1450 acre-feet per year) occurs 98 percent of the time. Average discharge during the 46-year period of record, through 1971, was 105 cfs (76,070 acre-feet per year) and median discharge is 15 cfs (10,800 acre-feet per year). Peak discharge was 60,000 cfs January 25, 1969.

Flow decreases upstream from the Wheeler Springs gage and all tributary streams in the proposed lease area are ephemeral in nature. During low flow periods only seeps exist in the headwaters of these tributaries and little surface flow reaches Sespe Creek.

(2) Water Quality

A reconnaissance survey of the quantity and quality of the surface waters of Sespe Creek and its tributaries was made by Santa Clara Water Conservation District March - April 1930. The results of these analyses are shown in Figure 8A. Locations of the sampling points are shown on Map 3.

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[1] Jorgensen, et. al., 1971, California Streamflow Characteristics, U.S. Geological Survey, Menlo Park, California, Vol. 1, pg. 657.

Water quality data were obtained by the U. S. Geological Survey on November 23-24, 1970, and January 20, 1971. Samples obtained in November reflect low water (dry season) conditions, and those in January reflect snowmelt runoff. These data were gathered to establish criteria to locate permanent, continuous monitoring points, and to indicate which of the various water quality parameters will be most useful to evaluate the influence of mining and processing on the affected streams. Analyses show the water is of a calcium bicarbonate sulfate type. All samples show appreciable boron and detectable fluoride. The waters are more dilute in terms of calcium and bicarbonate at the larger flows in January (1 to 3 cfs) than those in November (.003 to 1 cfs). The analyses of water samples and a discussion of x-ray diffraction analyses of streambed materials are given in Figures 25 and 26.

Analyses are made routinely on surface water samples obtained at the gaging station on Sespe Creek near Fillmore by the California Department of Water Resources. They are also included in the annual series, "Water Resources Data for California, Part 2, Water Quality Records", published by the U.S. Gelogical Survey, Menlo Park, California. During

1969, total dissolved solids at Fillmore ranged from a low of 167 ppm (discharge-15,800 cfs) to 827 ppm (discharge-6.1 cfs).

Comparison of the analysis made in 1930 of the water samples from the Cold Spring damsite and the analysis made in 1971 of water samples from the gaging site on Sespe Creek near Wheeler Springs (drainage area 49.5 square miles) indicate that little, if any, change has occurred in the quality of natural surface flows of upper Sespe Creek since 1930. Waters at Sespe Creek near Fillmore (drainage area 251 square miles), although considerably diluted, are the same general type of those in the upper Sespe Creek basin.

b. Ground Water

(1) Quantity

Water for the proposed operation will come from the water stored in the sandy rocks of the upper Monterey and Santa Margarita formations of Miocene age. The water-bearing rocks, or aquifer, are part of the Godwin Syncline, which apparently is a closed basin.

The Godwin syncline, named for Godwin Creek which bisects it, is located principally on the lease application and the ore body is included in the rocks that make up the south limb of the structure. This northwesterly trending closed synclinal geologic structural feature extends for several miles along the south side of the Pine Mountain thrust fault. Its northerly limb is truncated, dislocated, and locally overturned along this major fault system. Additional faulting to the east and west provide lateral closure. Marine and continental sediments ranging in age from Eocene to Upper Miocene are exposed in surface outcrop within the larger synclinal area, but within the smaller closed synclinal basin that contains the sandstone aquifer, only the more permeable Upper Miocene formations are present. According to the applicant, total water in storage of this previously untested aquifer is estimated to be 120,000 acre-feet, based on specific yield of 10 percent.

(2) Quality

Analyses of samples from several shallow wells in the area bordering the lease are available. Analysis of water pumped from the deep well in the Monterey Formation near the proposed plant is also available. (Section III - Water Quality).

Total dissolved solids of water from the Monterey Formation are about 1033 ppm. Major ions are calcium, sodium, bicarbonate, and sulphate. Chloride concentrations are low and range from 12 to 21 ppm. Boron and fluoride are 0.23 and 0.3 ppm, and pH is 7.5. Waters from the proposed ground water supply are generally of the same type as the surface waters of Sespe Creek and tributaries; however, the ground water has less boron (surface water boron ranges from 1.1 to 4.1 ppm), a comparable amount of fluoride, and generally lower pH (surface water pH ranges from 7.04 - 8.44).

6. Geology

Pine Mountain is a strike ridge. The crest and upper flanks are formed from sandstone with interbedded claystone and mudstone of the Matilija and Juncal formations of Eocene age. The Pine Mountain fault, a north-dipping reverse fault, traverses the south flank of the ridge in a west-northwesterly direction, making a relatively small angle with the general east-west strike of beds both above and below. The fault juxtaposes the Matilija and Juncal beds on the north against softer, more easily eroded strata of the Santa Margarita and Monterey Formations of middle and late Miocene age of the south.

The Pine Mountain fault crosses Chorro Grande Canyon about 2,000 feet below the crest of the ridge, and it is marked by a break in slope with steeper slopes above (in the Matilija and Juncal rocks) and lesser slopes below (in the Santa Margarita and Monterey strata).

a. Landslides

Several slumps and block slides were mapped by Vedder and others (1971)[1] and a reconnaissance examination of U.S. Forest Service aerial photographs taken in 1968 suggest that landslide deposits cover a part of the south flank of Pine Mountain. The "alluvial deposits" in the south-flowing tributaries of Sespe Creek, judging from the depositional slopes on their surface, probably include the deposits of many debris flows, such as those commonly generated during heavy rainfall as a result of soil slips--mass failure of the shallow colluvial soil mantle of the steep slopes (Map 5).

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[1] Vedder, J.G., Dibblee, T.W., and Brown, R.D., 1971, Geologic map of the upper Mono Creek-Pine Mountain area, California; U.S. Geological Survey open-file map, 1/48,000.

In addition to the well-defined slumps and block slides on the south flank of Pine Mountain, there is a well-developed trench along the crest of the ridge that suggests the possibility of a more deeply seated failure of the mountain slope. Similar features have been reported by Radbruch (1970)[1] in nearby parts of the Santa Ynez Mountains, who interprets them as the result of very large-scale creep or sliding. Similar trenches of this type have been noted in tectonically active areas in many other parts of the world(Radbruch, 1970, p. 18), and Beck (1967)[2] has diagrammed suggestions for some of the alternative methods by which these kinds of trenches may be formed as a result of gravitational adjustment of topography (Nemuak & Pauek, 1969, illustrate examples from the Carpathians with some excellent photographs).[3] Ridgecrest trenches of this sort are generally thought to be associated with gravitational movements of large masses. As a simple case, if the ridgecrest trench along the crest of Pine Mountain portends slide material to be released to the south flank on a surface parallel to the present slope, with the crown at the trench and the toe at the Pine Mountain fault or in the underlying gypsiferous beds, the potential volume is on the order of 1/10 billion

[1] Radbruch, D.H., 1970, Map showing area of relative amounts of landslides in California; U.S. Geological Survey open-file report.

[2] Beck, A.C., 1967 Gravity faulting as mechanism of topographic adjustment: New Zealand Jour. Geology and Geophysics, v. 11, no. 1.

[3] Nemuak, Arnold, and Pauek, Jaroslav, 1969, Mountainslope deformations: Geol, Prava, Spravyso, Bratislava.

cubic yards (bcy) to 1/2 bcy, depending upon the average thickness.

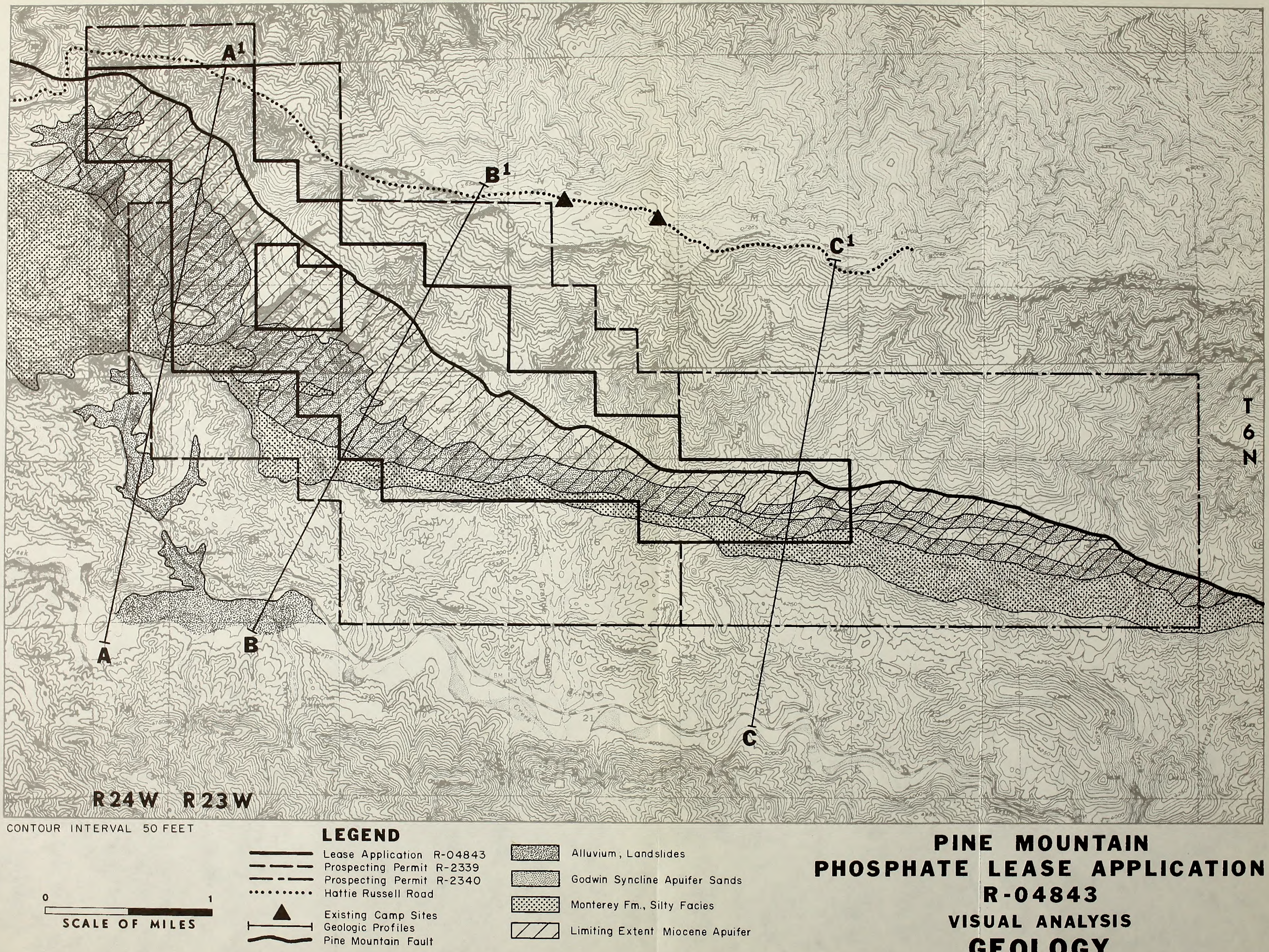
b. Seismic Shaking

The upper Sespe Creek area is within a zone of high seismicity that extends from Ventura on the coast, over 600 kilometers to near Winnemucca, Nevada, as described by Ryall and others[1] (1966) who conclude that it is the zone of most continuous activity in the coterminous United States, west of longitude 109° W. Recurrence intervals suggested by Ryall and others (1966, p. 1122) for the Ventura-Winnemucca zone indicate a rate for magnitude 6.0 earthquakes of 0.012 per year per 1,000 km^2 (about 1 per 83 years, somewhere within a radius of about 18 km). Similar curves, prepared by Allen and others (1965)[2], suggest that the average rate for magnitude 6.0 earthquakes in the southern California region is about 0.003 per year per 1,000 km^2 (about 1 per 333 years, somewhere within a radius of about 18 km). Regardless of questions about the quantitative precision of these numbers, it seems clear that one or more earthquakes of moderate to large magnitude can possibly occur nearby during the proposed active mining period.

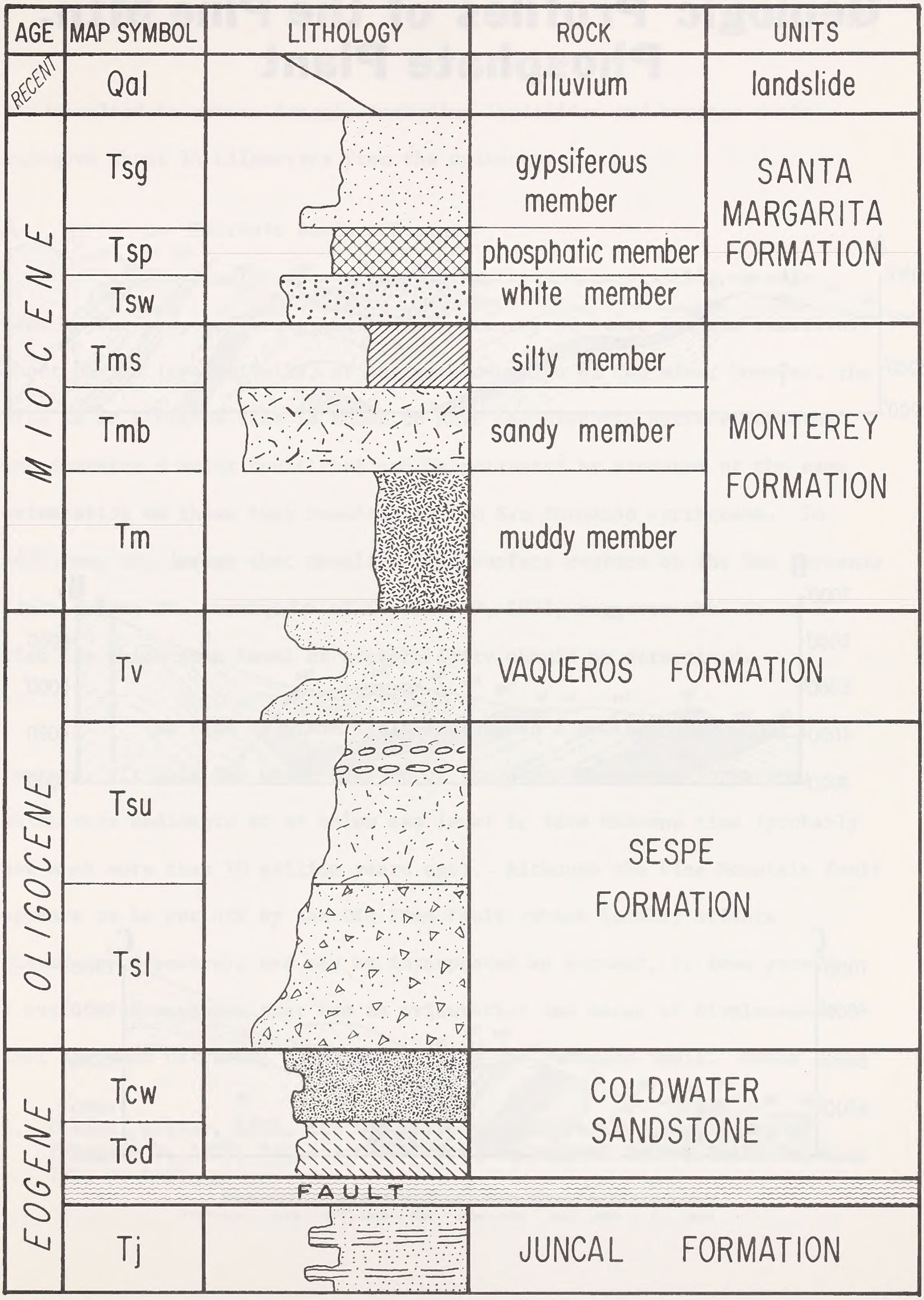
The nearest comparable experience of recent years is the San Fernando earthquake of February 9, 1971, which had a magnitude of 6.4,

1. Ryall, Alan, Slemmons, D.B., and Gedney, L.D., 1966, Seismicity, tectonism, and surface faulting in the Western United States during historic time; Seismological Society America Bulletin, v. 56.

2. Allen, C.R., St. Amand, P., Richter, C.F., and Nordquist J.M., 1965, Relationship between seismicity and geologic structure in the southern California region; Seismological Society America Bulletin, v. 55, p. 781.



PINE MOUNTAIN
PHOSPHATE LEASE APPLICATION
R-04843
VISUAL ANALYSIS
GEOLOGY



AGE	MAP SYMBOL	LITHOLOGY	ROCK	UNITS
RECENT	Qal		alluvium	landslide
MIOCENE	Tsg		gypsiferous member	SANTA MARGARITA FORMATION
	Tsp		phosphatic member	
	Tsw		white member	
	Tms		silty member	MONTEREY FORMATION
	Tmb		sandy member	
	Tm		muddy member	
OLIGOCENE	Tv		VAQUEROS FORMATION	
	Tsu		SESPE FORMATION	
	Tsl			
EOGENE	Tcw		COLDWATER SANDSTONE	
	Tcd			
		FAULT		
	Tj		JUNCAL FORMATION	

FIGURE 9

Geologic Profiles of the Pine Mtn. Phosphate Plant

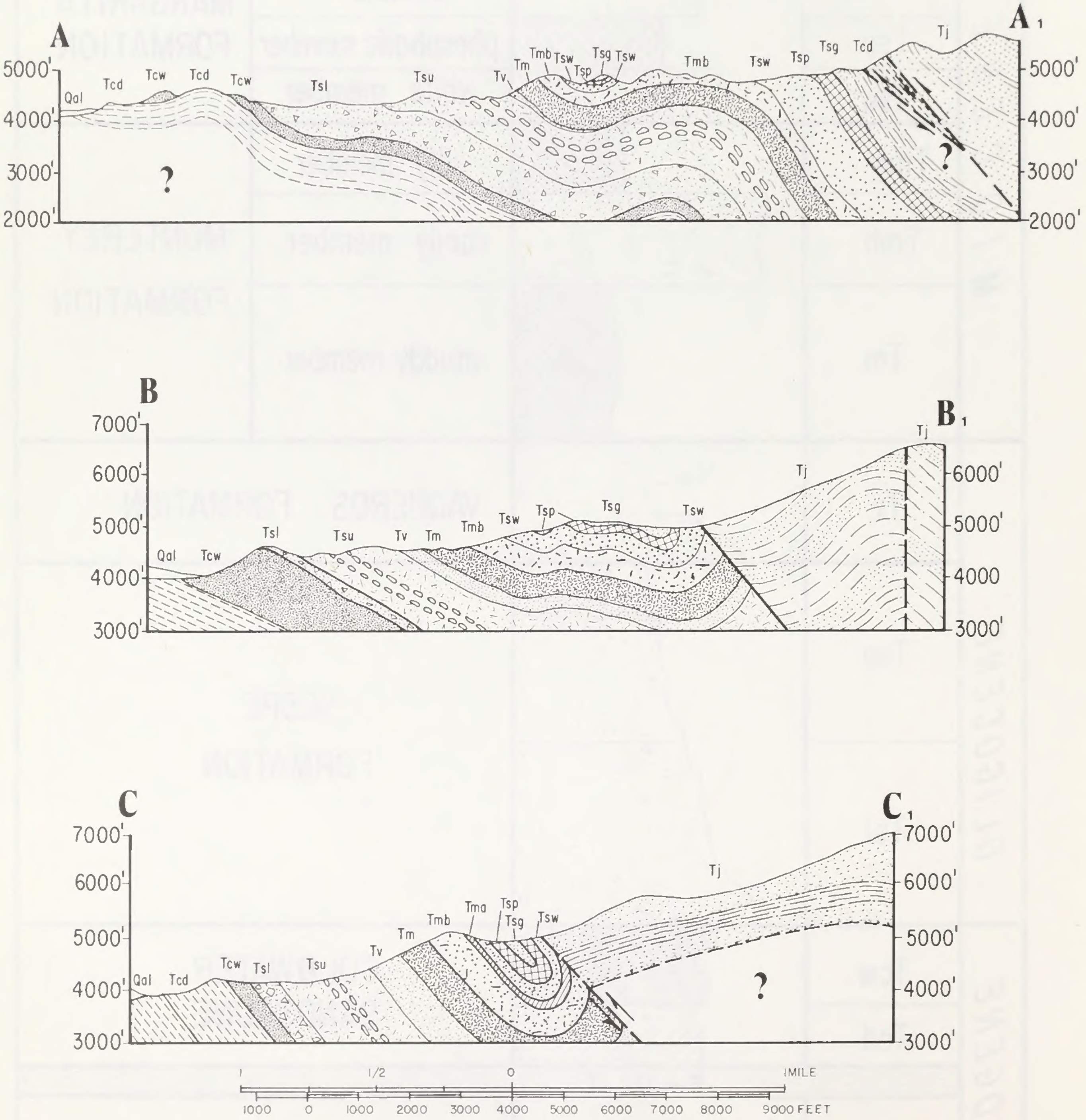


FIGURE 10

and resulted in severe damage, including landslides and surface fault ruptures about 14 kilometers from the epicenter.[1]

c. Tectonic Surface Rupture

The likelihood of tectonic surface rupture within or adjacent to the proposed lease area may be remote, at least for the relatively short period (geologically) of active production of the mine; however, the area is in a region that is known to have had historic surface ruptures and contains a major fault that can be activated by stresses of the same orientation as those that resulted in the San Fernando earthquake. In addition, the damage that resulted from surface rupture on the San Fernando fault during the earthquake of February 9, 1971, suggests that it is a risk for which some level of acceptability should be determined.

The Pine Mountain fault (Map 5) is a geologically young feature. It cuts the upper members of the Santa Margarita Formation, which were sediments at or below sea level in late Miocene time (probably not much more than 10 million years ago). Although the Pine Mountain fault appears to be cut off by the Big Pine fault (which locally offsets Quaternary deposits), and may be interpreted as dormant, it does provide a surface of weakness that has an orientation and sense of displacement that are much different from those of the San Fernando fault. Under

[1] Grantz, Arthur, 1971, the San Fernando, California, earthquake of February 9, 1971; Introduction: U.S. Geological Survey Prof. Paper 733, p. 1-3.

similar regional stress conditons, similar surface ruptures might reasonably be anticipated.

d. Lithology

The term "Munson Creek Formation" is a name which has been used to include the Santa Margarita Formation plus the sandy and silty phases of the underlying Monterey Formation. However, the Munson Creek Formation, which includes the phosphate zone, is usually considered equivalent to just the Santa Margarita Formation (Figure 9). In a paper entitled, "Miocene Stratigraphic Sequence on Upper Sespe Creek and Pine Mountain," William R. Dickinson of the Geology Department, Stanford University, states the following concerning his correlation of the two formations as observed during a field trip on October 17-18, 1969:

> "My correlation is based on the fact that approximately half of the strata, in aggregate thickness, are lithologically indistinguishable from beds in the Santa Margarita Formation of the nearby Cuyama Valley (Hill and others, 1958, p. 2995)."

Figure 9 shows the general lithology and the symbols for the various sedimentary rock units depicted in the geologic cross section (Figure 10 and Map 5).

The phosphate member of the Munson Creek formation is approximately 100 feet below the gypsum, and is about 300 feet thick where found within the boundaries of the Lease Application. It consists of loosely cemented sands, silts, and varying amounts of phosphate, all thought to have been originally deposited in a brackish water environment. The phosphate values occur as a carbonate fluorapatite, largely in the form of small (minus 48 mesh) pellets. The company reports that sampling of this phosphatic zone, both at the outcrop and from drill core, shows a definite series of beds varying from a few inches up to a few feet in thickness, with each bed carrying a phosphate content which, within the area studied under application, is quite uniform along strike and dip but highly variable from bed to bed.

The center section of these phosphatic beds, approximately 90 feet thick, has been reported by the company as being the "economic ore zone" and to average 8.3% P_2O_5. Overlying this "ore zone" is 50 feet of phosphatic sands and silt, 90 feet of unconsolidated sands, 12 feet of well consolidated shell fragments, 20 to 25 feet of gypsum, and up to 150 feet of gypsiferous shales. Alluvial cover resulting from landslides may also overlie portions of the areas planned for mining.

As in any ore, the 90-foot "ore zone" is made up of several minerals, which have been identified as follows:

Quartz	52.0
Apatite	21.5
Clays	13.0
Carbonates	6.0
Gypsum	2.0
Organic Material	4.5
Minor Occurrences	1.0
	100.0%

e. Paleontology

The following discussion is based upon the above mentioned paper by Dickinson.

Both the Monterey and Santa Margarita Formations are exposed within the area of the proposed mining operation, and contain fossil invertebrates typical of the Middle and Upper Miocene shallow marine environments of Southern California. It is the Santa Margarita Formation with which we are most concerned.

The basal yellow-gray to white sandstone member of the Santa Margarita Formation contains a varied vertebrate fauna of sea mammals and a late Miocene invertebrate assemblage, "which included the pelecypod *Pecten Raymondi*, the sand dollar *Astrodapsis arnoldi*, and the pelecypods *Mytilus loeli*, *Trachycardium schencki*, and *Anadara trilineata*" (Dickinson). Shark teeth are also found in this basal member. The middle phosphatic member "has yielded the pelecypods *Chione sp*. and *Tamiosoma gregaria*, and also a Mohnian foraminiferal assemblage (Lowe, this guidebook)" (Dickinson). The upper gypsiferous member represents a transition from marine to fluvial deposition in ascending order as follows:

1. Massive, well-sorted and locally cross-bedded sandstone, containing a late Miocene invertebrate assemblage that includes "*Astrodapsis arnoldi*, *Pecten crassicardo*, and *Ostrea titan*.

"2. Lagoonal deposits,...containing... (a) bioclastic shell hash and coquina made of fragments and valves of small, thin-shelled oysters; overlain by (b) ...laminated gray and green gypsum, and locally anhydrite, with thin seams of green claystone; and topped by (c) ... interbedded gypsum and claystone.

"3. Weakly consolidated, white, fluvial (?) sandstone and conglomerate, ... with intercalations of green to brown mudstone and siltstone" (Dickinson).

There are no known rare or undescribed fossils within the Santa Margarita Formation in the subject area.

The underlying Monterey Formation contains abundant foraminifera (micro fossils) and a Middle Miocene assemblage of molluscan fossils including the pelecypods, Pecten orassicardo and Ostrea titan; and the gastropod, Turritella carisaensis. Again, no rare or undescribed fossils are known from the Monterey Formation in the subject area.

7. Soils

No detailed soils information is available in the area of the proposed lease. Intensive soils mapping has been done in the southern portion of Ventura County, but has not been extended past the National Forest boundary, north of Ojai.

Soils are generally shallow and underlain by sandstone or siltstone. There is ample evidence of mass soil movement in the area, but susceptible soils have generally not been mapped.

The majority of the upland surface soils are shallow, generally less than six inches deep. The surface soils in the riparian type and

FIGURE NO. 11 - SOIL OF SUBTYPES WITHIN THE LEASE AREA

Subtotal	% of type within Lease Area		Depth	Texture	pH	Detachability Rating Density
Riparian	5	Surface	10-3"	fine loam	7.0	Moderate
			3-13"	gravely loam	7.0	
		Subsoil	11-36"	sandy loam	8.0	
Ridge top	5	Surface	0-1"	loam	7.0	Moderate
			1-5"	loam	6.5	
		Subsoil	5-12"	clay loam	6.0	
			12-18"	sandy loam	5.0	
Upland 10-40% slope	30	Surface	0-5"	very fine sandy loam	6.5	Moderate
		Substratum	5"+	decomposed sandstone	7.0	
40% + slope North Aspect	5	Surface	0-10"	loamy sand	8.0	Weak
		Subsoil	10-28"	sandy loam	8.0	
	Note: surface soil very hydrophobic					
South Aspect	30	Surface	0-6"	sandy loam	8.0	Moderate
		Substratum	6"+	decomposed sandstone		
West Aspect	15	Soil similar to North aspect				
East Aspect		Soil similar to South aspect				

From: U.S.F.S. Stage 1 Impact Survey

north slope are less than 13 inches deep. They have a sandy loam texture with a pH ranging from 7.0 to 8.0. Surface soils were found to be hydrophobic (nonwettable). Detachability was rated at moderately to weakly resistant, and the soils have a moderate to high erosion hazard rating.[1]

Major storm and long-term erosion rates in mountain watersheds of the western Transverse Ranges of Ventura County are estimated to range from low values to values as high as those recorded anywhere for comparable bedrock erodibilities.

A major reason for this extreme variability is the high degree of tectonic activity in the area--watersheds are locally being uplifted by at least as much as 25 feet per 1,000 years, yet the maximum extrapolated rate of denudation measured over the longest available period of record is 7.5 feet per 1,000 years adjusted to a drainage area of 0.5 square mile. Evidence of large amounts of uplift continuing into historic time includes structurally overturned strata of Pleistocene age, active thrust faulting, demonstrable stream antecedence, uplifted and deformed terraces, and other results of base-level change seen in stream channels. Such evidence is widespread in the Transverse Ranges, and aspects of the landscape, such as drainage-net characteristics and hillslope morphology.

Downslope movement of material as debris flows, mudflows, and mass movements--forms of sediment movement not involving normal aqueous

[1] U.S.D.A., Forest Service, Region V, "Pine Mountain Phosphate Project", Draft Survey, Stage 1, April 1970, page 22.

entrainment--is widespread and is a reflection of the active tectonic setting of the Transverse Ranges.

So prominent and widespread was evidence of debris flow in the small study watersheds after the 1969 storms, that it was possible to formulate a model for the dispersal of sediment in such watersheds. Lateral supply of sediment to stream channels is a relatively continuous process, accomplished in significant part during the dry season by dry-sliding, in addition to wet season contributions from overland flow and mass movements. During periods without major storms, stream channels undergo more or less time-continuous fill. Then, during a storm of high recurrence interval, channel bed material is mobilized and dispersed in large part by debris flows--coarse granular slurries, some of which are induced by mass movements triggered by the storm. Channels undergo substantial net scour, accomplished by removal of bed material in debris flows and by scour during recession flow. Valley side slopes are undercut by bank erosion, and a new cycle of channel infilling by hillslope processes is initiated.

A complete description of erosion and sediment yields in mountain watersheds of the Transverse Ranges, Ventura and Los Angeles Counties, California, and analysis of rates and processes are given by Scott and Williams (1974).

Dr. Scott points out that major storms like those of March 1938 and January and February 1969 have followed a generally similar pattern that can be expected to recur in future major storms. The January 1969 storm generally produced peak discharges equal to or greater than those of the 1938 storm in Ventura and Los Angeles County. The 1938 storm had been the greatest storm of recent times, at least since the legendary flood of 1862, and its peak discharges and sediment yields have been widely used as standards of flood magnitude and as criteria for sediment-debris impoundment structures. A large quantity of sediment yield data were obtained in 1969.

Estimates of erosion and sediment yield based on yields during the January 18-27, 1969, storm may be considered representative of future conditions. No other recent storm is comparable in the number of conditions which should be attached to a design storm in the area and which are satisfied by the January 1969 storm. Most importantly, the storm was of a magnitude for which the response of the watersheds to the complex variety of erosional processes could be assumed to be similar to that of a theoretical event of 50-years' recurrence interval.

Sediment data are obtained by the U.S. Geological Survey at Sespe Creek near Fillmore. Annual water and suspended-sediment discharge are shown in the following table.

FIGURE NO. 12 - WATER AND SEDIMENT DISCHARGE

Water year	water discharge (acre-feet)	sediment discharge (tons)	sediment discharge max. day, date (tons)
1966-67	153,700	697,000	385,000 12/6/66
1967-68	20,830	20,610	8,170 11/21/67
1968-69	463,900	9,506,000	2,950,000 1/25/69
1969-70	52,700	304,400	127,000 2/28/70
1970-71	63,970	553,400	496,000 11/29/70
1971-72	27,160	77,680	31,400 12/24/71

Evidence of debris flow or viscous surge of sediment - water slurry associated with storm runoff - was present in Sespe Creek following the 1969 flood. The flow was continuous, based on evidence of buried vegetation, both across the channel and to a point 0.8 mile away from the mountain front. The material transported by debris flow is mostly in addition to the quantity of suspended sediment listed in the table, thus total sediment transported at Sespe Creek near Fillmore during the 1969 flood was considerably greater than 10,000,000 tons.

Dr. Scott (1974) estimated the erosion from the south slope of Nordhoff Ridge, about 4 miles north of Ojai, where the bedrock is the Eocene sequence of the Matilija overturn, a deformed structural feature associated with recently active thrust faulting. Sediment yields are high relative to other parts of the Transverse Ranges. Erosion rates from the January 1969 storm ranged from 31,200 to 84,300 cubic yards per year (42,000 to 114,000 tons per square mile). Sespe Creek basin, drainage area 251 square miles, sediment yield was 38,000 tons per square mile during 1969.

Hence all data indicate very high natural erosion and sediment transport in Sespe Creek basin. There are no indications that conditions affecting natural basin erosion will change in the predictable future. Decisions based on present trends must be qualified with the consideration that such trends may be only short-term perturbations about a long-term trend or equilibrium condition and, as such, may be broken at any time.

8. Vegetation

The area falls within the Californian Biotic Province, as defined by Munz. The proposed lease falls entirely within the Chaparral plant community. A small, 275-acre inclusion of the valley grassland type is found in the western portion of the lease area. The crest of Pine Mountain, above about the 6,000-foot contour, is occupied by the Yellow Pine Forest vegetative type.

The most abundant species within the Chaparral type are chamise (*Adenostema fasciculatum*), ceanothus (*Ceanothus sp.*), manzanita (*Arctostaphylos sp.*), coffeeberry (*Rhamnus sp.*), and scrub oak (*Quercus dumosa*). Grasses are found primarily in the canyon bottoms, and include: deer grass, wild rye and bromes. A few outlier trees, primarily big-cone spruce, are found to the immediate north of the lease area.

Soils, vegetative composition and crown density are strongly correlated with slope and aspect (Figure 13).

9. Wildlife and Fish

a. Mammals

Mammals thought to occur within the lease area are listed in Figure 14. No quantitative work has been done with any of these species except California mule deer, so no estimates of population size and structure are available. All mammals recorded are those typical of chapparral communities throughout southern California. There are no known rare or endangered forms.

FIGURE NO. 13 - VEGETATION OF SUBTYPES WITHIN THE LEASE AREA

Subtype	% of type within Lease Area	Species	% Composition	% Crown Density
Riparian	5	Coffeeberry	50	30
		Willow sps.	40	
		Elderberry	5	
		Whitehorn ceanothus & other	5	
Ridge top	5	Chamise	85	50
		Hoaryleaf ceanothus	13	
		Manzanita & other	2	
Upland 10-40% slope	30	Chamise	50	30-60
		Hoaryleaf ceanothus	35	
		Scrub oak	5	
		Manzanita	3	
		Silk Tassel	2	
		Pinion pine & other	5	
40% + slope North Aspect	5	Manzanita	50	60-70
		Scrub oak	25	
		Silk tassel	5	
		Flannel bush	5	
		Hoaryleaf ceanothus	10	
		Canyon live oak & other	5	
South Aspect	30	California buckwheat	20	10-20
		Yerba Santa	20	
		Mountain Mahogany	15	
		Red berry	10	
		Scrub oak	10	
		Manzanita	15	
		Hoaryleaf ceanothus	10	
West Aspect	15	Scrub oak	25	30-40
		Manzanita	25	
		Hoaryleaf ceanothus	25	
		Chamise	20	
		Other	5	
East Aspect		Hoaryleaf ceanothus	60	40-60
		Chamise	30	
		Manzanita & Scrub oak	10	

The lease area is included within a segment of the Mt. Pinos Deer Herd winter range, but is considered a minor part of that range. Deer use within the Pine Mountain area is believed to have decreased considerably since the 1940's, apparently due to deteriorating habitat conditions. The vegetation in this area has not burned since 1932, hence has become low in nutrient content and almost impenetrable in some sections.

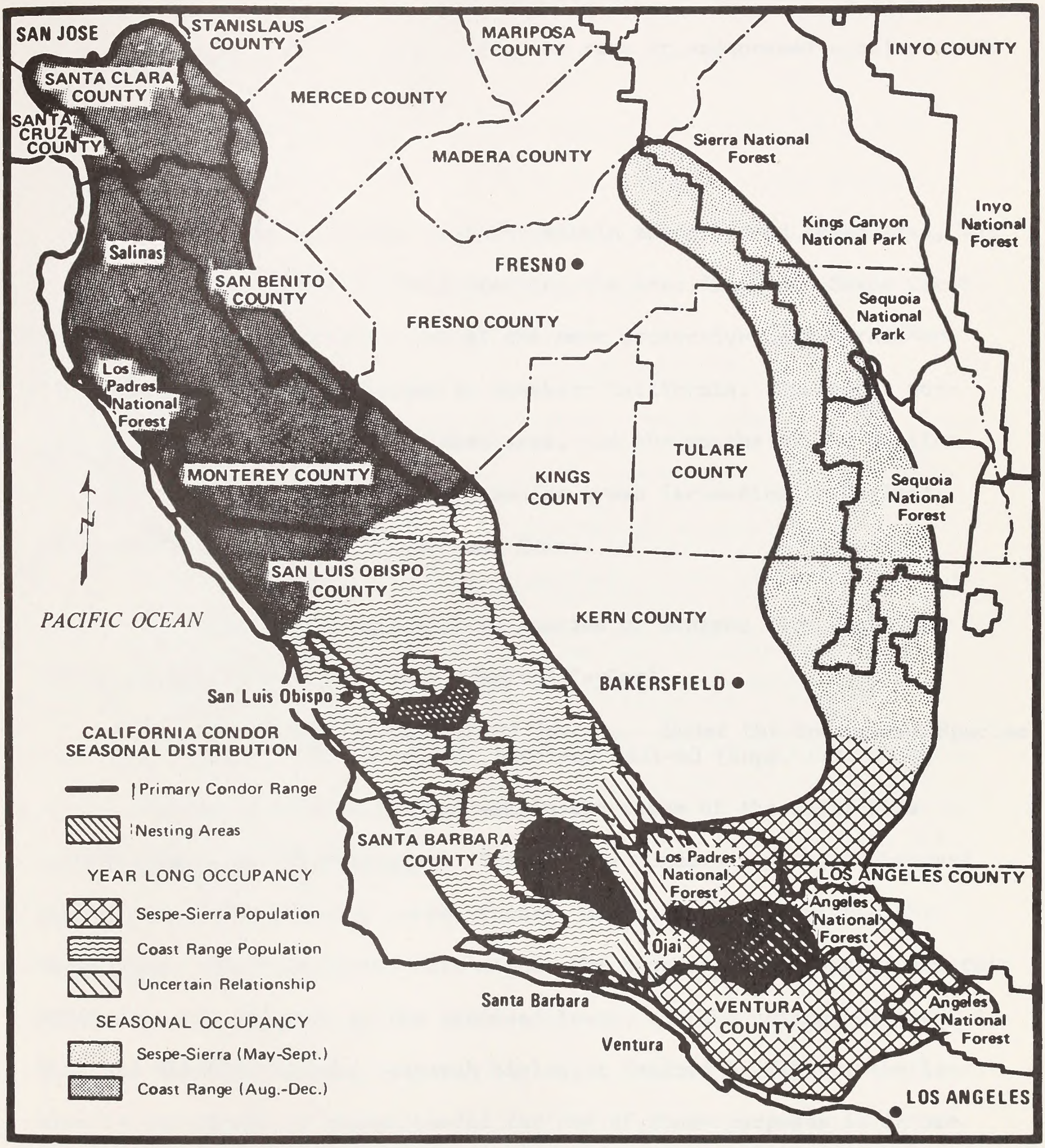
The U.S. Forest Service estimates recent deer use in the more open portions of Chorro Grande Canyon at approximately 12 deer-days per acre. Approximately 300 deer are estimated in the 6,000-acre area surrounding the proposed lease area.

b. Birds

At least 84 species of birds occur in the vicinity of the proposed lease (Figure 15). Approximately 40% are yearlong residents, 35% summer visitants, 20% winter visitants, and 5% migrants. All are typical of the mountains of southern California, and none except the California condor are considered threatened or endangered. No quantitative surveys have been made of the area. Of the huntable species, California quail and mountain quail are common residents, and mourning doves and bandtailed pigeons occur seasonally.

c. Amphibians and reptiles

No herpetological surveys have been made in this area. Hence lizards (Sceloporus sp.), horned lizards (Phrynosoma coronatum),



Drawing Number: 04-010-76

MAP 6

and western rattlesnakes (Crotalus viridis) are known to occur; undoubtedly, a number of other species occur also. No rare or endangered species occur in the area, as far as is known.

d. Fish

No fish are known to occur within the proposed lease area, but the several intermittent streams draining the area flow into Sespe Creek. Sespe Creek is recognized as one of the more productive native rainbow trout (Salmo gairdneri) streams in southern California. The upper portions of Sespe Creek near the lease area, and the mouths of the smaller tributary streams, are important spawning areas (according to Gayland Taylor, California Dept. of Fish and Game).

Some so far unidentified species of nongame fish occur in the Upper Sespe Creek area also (Gayland Taylor).

10. Threatened and Endangered Species - Under the Endangered Species Act of 1973, 16 U.S.C. Sections 1531-43 (Supp. III, 1973)

The lease area is located within the range of the California condor (Gymnogyps californianus) (Map 6), and condors have been observed flying over. There are no nests, roosts, or feeding areas within the lease area. There is a nest site within the boundary of prospecting permit #2340 directly adjacent to the proposed lease. In the opinion of the U.S. Fish and Wildlife Service research biologist Sanford R. Wilbur, the lease area is not likely to become useful for any of these purposes in future years. However, areas located near the lease area - and possibly subject to modification as a result of mining operations - are important to condor survival. Therefore, it seems advisable to fully discuss condor status and requirements generally and in relationship to the lease application.

The following information is taken from the 1974 California Condor Recovery Plan, prepared by biologists of the Fish and Wildlife Service, Forest Service, California Department of Fish and Game, National Audubon Society, and Bureau of Land Management.

a. Current status

Approximately 60 condors now exist, occupying a wishbone-shaped range in the mountains of central California from Santa Clara and Fresno counties south to Ventura and Los Angeles counties. They occur in two (possibly more) subpopulations that have their own nesting, roosting and feeding areas, and that seldom, if ever, intermix. Most condors (termed the Sespe-Sierra population) occur in the southern and eastern portions of the range. Approximately ten condors (the Coast Range population) occupy the western arm of the range. Condors using the lease area are believed to be members of the Sespe-Sierra population.

Annual survival is currently very high, perhaps as high as 95 percent. However, annual productivity since 1968 has averaged two young or less. This is not adequate to balance expected mortality over a period of years, consequently the condors' status must be considered precarious and the population still declining.

b. Reasons for decline

Decline of the California condor population within historic times occurred because the delicate natural balance between natality and mortality was upset. Use of condors for ceremonial purposes by the earliest Indian arrivals in North America began the change. The first Europeans to arrive, in the early 1800's, in the range of the condor reported shooting some of them. As settlement of the Pacific Coast continued, more were shot and their eggs collected. Some died from poisons and steel traps set out for predators (Fry, 1926; Koford, 1953: 130-131; Miller et al, 1965:36-37), and civilization in many forms crowded them out of portions of their range. Sporadic mortality over a period of years was apparently enough to start a downward trend in the condor population, but major shooting losses and egg collecting near the end of the 19th Century accelerated that decline. A minimum of 204 condors and 54 condor eggs are known to have been collected for scientific and hobby purposes, over half of them between 1881 and 1910 (Wilbur, MS). Apparently many more were shot out of curiosity, maliciousness, or mistaken belief that condors were harmful to people and livestock. Taken together, this mortality in a population unused to any noticeable loss far exceeded the low productivity of the species. Had it not been for protective measures during the years following 1925, the condor might already be extinct. However, in spite of complete legal protection for the birds and their eggs, man-caused losses continued at a high enough rate that the condor population continued to gradually decline. Today, continuing losses of habitat and the species' inherent low reproductive rate interact to keep the condors on the verge of extinction.

c. Life history and population dynamics

Condors acquire adult plumage at approximately six years of age, and have never been known to breed while in subadult plumage. However, it is not known if six-year-old birds are successful breeders, or if they require additional years to attain reproductive proficiency. Once reproducing, the average pair of condors nests every other year, laying one egg per clutch. The long interval between nestings is partially a response to the extra-long reproductive cycle. Paired birds are observed courting as early as October in some years, and finally lay their eggs between February and May. Incubation requires in excess of 42 days, after which the fledgling remains in the nest for about five months. For several months after it can fly, the young bird is still completely dependent on the parents for food. This juvenile dependency period may extend well into the following calendar year, precluding a new nesting cycle. (Condors may sometimes nest successfully in consecutive years if young birds are able to achieve independence at an earlier than usual age. An abundant local food supply, and absence of competition for food between the young bird and older, more dominant condors are the apparent requirements.)

Breeding adults and younger subadult condors stay near nesting areas yearlong, foraging for food (carcasses of livestock, deer and other animals) in nearby grassland areas. Subadults and other nonbreeding condors leave the vicinity of the nesting grounds in March and April, and migrate north to traditional summer and fall roosting areas, returning south again in late fall.

In many wildlife species, a large percentage of individuals are capable of reproducing and adding to the size of the population. The reverse is true in the condor population. Because of the long period of sexual immaturity and the low productivity of individual pairs, total annual production was low even when the population was large. Of the estimated 60 condors now in existence, perhaps 40 are of breeding age. Assuming an even sex ratio, no superannuated members in the population, and free interchange between all condors in the population, a maximum of twenty breeding pairs can be formed. Because of probable inequities in sex, age and distribution, a total of approximately 16 pairs seems more likely. With condors nesting regularly every second year, eight pairs would be breeding in an average year. Assuming some nest failure, highest annual production is likely to be somewhat less than eight birds. At this rate, an average annual survival of 90 percent or more is necessary to maintain a static population. The current survival rate appears to be at or above 90 percent, but cannot be maintained long because of expected old-age losses. Also, production in recent years has not approached the theoretical level of six or eight fledglings annually, so the present imbalance between natality and mortality is even more severe than might be expected.

d. Habitat requirements

The California condor has three basic habitat needs: adequate nesting sites, roosting sites, and feeding habitat with adequate food. These must be equally available to each subpopulation of condors, and geographically and seasonally located to fit traditional condor use patterns.

(1) Nesting areas

Condors nest in various types of caves, crevices and potholes in isolated areas of the Coast and Transverse Ranges. (At least one nesting is known in the Sierra Nevada in Tulare County, but this was apparently an unusual occurrence.) No nest is built, the single egg being laid on the bare or sand-covered cave floor. Judging from historical records, suitable locations were found scattered throughout the coastal mountains. Many of these sites are now unused because of man-related disturbance or because condors no longer occur in the vicinity. Condors have recently nested in San Luis Obispo County, in the Sespe-Piru area of Ventura and Los Angeles counties, and in Santa Barbara County. While each is important, the Sespe-Piru has the best potential because of abundant nest sites and the largest local condor population. Sibley (1969) states: "The importance of the Sespe-Piru area to condor survival cannot be overstated. This has been the major center for the condor population at least since 1960. It contains most of the nesting sites and winter roosts. It is a unique area not duplicated elsewhere in the condor's present or past range. Adequate reproduction can be assured only be avoiding adverse modification of this area." However, while coast range areas have either fewer birds or fewer nest sites, their preservation is important to supplement Sespe-Piru production. Their potential for adding birds to the population may currently be as good as the Sespe-Piru because local food supplies look more dependable.

(a) They must be protected from human encroachment.

Human disturbance normally will not cause condors to abandon their nests, in the sense that they will fly from nest sites and not return. In fact, some nests have been repeatedly disturbed and have been successful (Koford, 1953; Sibley, 1969). However, human disturbance discourages condors from nesting in otherwise suitable locations, and may cause nest failure.

Sibley (1969) found a correlation between location of recently used condor nesting sites, and location and magnitude of human activity. Even though apparently suitable sites existed elsewhere (either historically used sites, or ones with similar characteristics to recently active nests), he calculated the following minimum distances of nests from various disturbance and improvements:

(i) Lightly used dirt roads - 0.8 miles when unshielded from sight and sound of road, occasionally closer when completely shielded.

(ii) Regularly used dirt road - 1.2 miles when unshielded.

(iii) Paved road - 2.2 miles

(iv) Oil Wells (shielded from sight and south) - 1.2 miles

(v) Oil wells (in view of nest) - 2.3 miles

Both regularity and magnitude of disturbance are involved in discouraging condor nesting, as nests may be located closer to lightly used roads than to regular travel routes or oil well operations. Condors have nested very near intermittently used foot trails. The greater the disturbance, either in frequency or noise level, the less likely condors are to nest nearby.

Nest failure due to human disturbance has occurred. Sibley (1969) cites two examples of egg breakage caused when a condor was frightened by intruders. In a third instance a surprised bird leaped forward, carrying the egg with it some distance, but the egg did not break. Similar losses are possible as a result of people approaching nests, dynamite blasts, sonic booms or other disturbances is suggested by other observations. For example, Sibley (1969) saw a sleeping condor flush violently from a pothole following a sonic boom. Ames and Mersereau (1964) record several instances of egg loss from osprey nests when the birds were flushed by passing motorboats, and knocked eggs from the nest during their rapid departure. Discussing peregrine falcon egg loss, Hagar (1969) notes "evidence that a missing egg or eggs has been knocked off a poor shelf by an incubating bird flushing directly and hurriedly from the nest." A. H. Morgan, Massachusetts Audubon Society, (letter, June 22, 1970) has observed egg loss in heron, ibis, and seabird colonies when a spontaneous sound like a gunshot triggerd the rapid exodus of adults. The more prevalent such disturbances are in condor nesting habitat, the less likely nests will be successful.

(b) There must be an adequate, dependable food supply nearby if breeding condors are to be encouraged to stay in the area, and if nestlings are to survive and mature at the proper rate. In some cases, supplemental food is desirable to augment that available through natural loss of livestock or wild animals.

(2) Roosting areas

California condors have traditional roosting sites that are used year after year. A typical site has rock cliffs, dead conifer snags or both, and is located in an isolated, or at least semi-secluded area. Condors will apparently tolerate more disturbance at a roost than near a nest. For example, Sibley (1969) describes one roost within 100 yards of a lightly used road and within one-quarter mile of a summer home tract, and another within one-half mile of radio towers, a fire lookout and summer homes. However, in the first instance the roost is shielded from view of the road by both vegetation and topography, and is difficult to approach on foot. The roost trees in the second case, although situated close to various facilities, are seldom actually visited. That there may be a limit to tolerable disturbance at roosting areas is suggested by the lack of recent condor roosting use of the southwestern portion of Hopper Ridge near Hopper Mountain, Sespe Condor Sanctuary. This area, regularly used by roosting condors between 1939 and 1946 (C. B. Koford, field notes), now has a large cluster of oil wells only one-half mile distant.

There may be adaptive as well as traditional reasons for condors to continue to occupy a number of widely separated roost sites, such as reducing food competition between breeding and nonbreeding birds. Also, with condors dispersed over a large area, the population is not as subject to disastrous losses (from wanton shooting, poisons, or natural accidents) as they might otherwise be.

(3) Food and feeding habitat

A detailed discussion of condor food habits and feeding behavior is given by Koford (1953:55-57), while the current food situation is treated in detail by Wilbur (1972).

While the condor is not as ungainly on and near the ground as it is described in popular literature, it does require fairly open grassland habitat for feeding. This assures easy takeoff and approach, and makes food finding easier for this species that apparently depends on sight rather than smell for locating its food. The condor eats only dead animals. Historically, this probably included deer, elk, pronghorn, whales, sea lions, and smaller animals. Because of availability, cattle are now the primary food source, but other animals are eaten when available.

Condors sometimes cannot feed for several days in succession, when inclement weather inhibits flying or impairs visibility of food. This is a natural situation the species has endured for centuries, and it has undoubtedly adapted to "feast or famine" conditions. Hatch (1970) experimentally starved turkey vultures for over ten days with no loss of vigor or reduction in body temperature. His conclusion that "turkey vultures thus can easily endure short periods of unfavorable weather by simply waiting" can undoubtedly be applied equally well to the condor's feeding situation.

(a) A substantial, readily accessible food supply within 25-30 miles of nesting areas all year. Lack of food nearby may inhibit breeding activity and result in few birds nesting, and may impair survival of nestling and early flight-stage condors. A good food supply may result in increased breeding by individual pairs.

(b) Food available seasonally in outlying portions of the condor range, especially near known roosting areas. This will permit condors to continue to make long-established seasonal movements which are undoubtedly of adaptive value to the population. For instance, migration of older nonbreeders out of nesting areas in spring reduces food competition with breeding birds and those juvenile condors that do not feed successfully in a large group (i.e. those low on the "peck order").

Condors usually do not feed as close to roads, residences and other areas of regular human use as do turkey vultures, golden eagles, and ravens. Food is most likely to be used by condors when located in areas of minimal disturbance.

e. Mortality factors

California condors have no regular natural enemies and, judging from zoo records of condors living to be 30 to 45 years of age, normally have a long life. The majority of former causes of mortality - egg and skin collecting, collecting for quills, Indian ceremonial use, capturing for sport - are no longer operable. But condors do occasionally die from other than natural causes; and with such a small population, having such a low replacement potential, survival of every bird and success of every nesting is especially important. The potential for loss from any source must be reduced to the lowest level possible.

(1) Poisoning

There appears to be no basis for the hearsay reports of hundreds of thousands of condors dying from strychnine-poisoned baits during the latter part of the 19th Century (Harris, 1941; Koford, 1953). However, strychnine-poisoned carcasses set out for coyote control are implicated in at least two cases of condor sickness. Of the four condors involved in these two instances, one died. There may be hazard involved in other poisons used in animal control, such as sodium monofluoroacetate (Compound 1080) and thallium, but no certain losses can be attributed to them.

Use of the animal control toxicants on federal lands within the range of the condor has been restricted for a number of years. However, because every condor is important to the condor population, continuing efforts should be made to decrease the use of all poisons within the condor range, and to devise techniques of control that have even less potential for harming condors.

(2) Shooting

Mortality, resulting from the actions of malicious and ignorant shooters, has been one of the main drains of the condor population since European man reached the West Coast. The magnitude of the problem probably increased following the advent of the high-powered rifle in the 1890's and continued only slightly abated until recent years.

On January 5, 1972, the U. S. Forest Service implemented a complete firearms closure in the Sespe Condor Sanctuary and in adjacent condor congregation areas. This, along with continuation of a general program of education and law enforcement, has reduced the potential for shooting losses. Further restrictions of firearm use in other condor congregation areas is being investigated.

(3) Accidents

Koford (1953:131) cites records of two condors with broken wings resulting from flying into objects. In 1966 a condor was killed by hitting a powerline. All three were immature birds, which are not as adept at flying and landing as are adult birds. Death resulting from collisions with manmade objects are unusual, but are at least partly preventable through carefully planned placement of powerlines, towers, and other facilities within the condor range, particularly in areas frequently inhabited by young birds.

f. Productivity considerations

Current low productivity seems unrelated to either lack of enough breeding-age birds or lack of sufficient habitat. Disturbance of breeding birds may be locally important, but appears unlikely as a primary cause of low productivity. Insufficient food appears to be the most probable limiting factor, but it is possible that other, so far unidentified factors are equally important. Additional research is needed to identify such factors and evaluate their effects.

FIGURE 14

Mammals of the Pine Mountain Phosphate Lease Area

California mule deer	*Odocoileus hemionus*
Coyote	*Canis latrans*
Gray fox	*Urocyon cinereoargenteus*
Bobcat	*Lynx rufus*
Striped skunk	*Mephitis mephitis*
Spotted skunk	*Spilogale gracilis*
Raccoon	*Procyon lotor*
Long-tailed weasel	*Mustela frenata*
Badger	*Taxidea taxus*
Mountain lion	*Felis Concolor*
Black bear	*Ursus americanus*
Jackrabbit	*Lepus californicus*
Cottontail rabbit	*Sylvilagus auduboni*
Brush rabbit	*Sylvilagus bachmani*
Beechey ground squirrel	*Spermophilus beecheyi*
Merriam chipmunk	*Eutamias merriami*
Pocket gopher	*Thomomys umbrinus*
Broad-footed mole	*Scapanus latimanus*
Dusky footed woodrat	*Neotoma fuscipes*
Kangaroo rat	*Dipodomys agilis*
Pocket mouse	*Perognathus californicus*
Deer mouse	*Peromyscus maniculatus*
California mouse	*Peromyscus californicus*
Brushmouse	*Peromyscus boylii*

Sources: Dr. William O. Wirtz II, Pomona College, California; U.S. Forest Service

FIGURE 15

Birds occurring in Vicinity of Phosphate Lease Area

California condor	Gymnogyps californianus
Turkey vulture	Cathartes aura
Cooper's hawk	Accipiter cooperii
Sharp-shinned hawk	Accipiter striatus
Red-tailed hawk	Buteo Jamaicensis
Golden eagle	Aquila Chrysaetos
Marsh hawk	Circus cyaneus
Sparrow hawk	Falco Sparverius
California quail	Lophortyx californicus
Mountain quail	Oreortyx pictus
Band-tailed pigeon	Columba fasciata
Mourning dove	Zenaidura macroura
Barn owl	Tyto alba
Horned owl	Bubo virginianus
Poor-will	Phalaenoptilus nuttallii
White-throated swift	Aeronautes saxatilus
Anna's hummingbird	Calypte anna
Allen's hummingbird	Selasphorus sasin
Rufous hummingbird	Selasphorus rufus
Acorn woodpecker	Melanerpes erythrocephalus
Red-shafted flicker	Colaptes cafer
White-headed woodpecker	Dendrocopos albolaruatus
Yellow-bellied sapsucker	Sphyropicus varius
Hairy woodpecker	Dendrocopos villosus
Nuttall's woodpecker	Dendrocopos nuttallii
Ash-throated flycatcher	Myiarchus cinerascens
Gray flycatcher	Empidonax wrightii
Western wood pewee	Contopus sordidulus
Olive-sided flycatcher	Nuttalornis borealis
Violet-green swallow	Tachycineta thalassina
Tree swallow	Iridoprocne bicolor
Cliff swallow	Petrochelidon pyrrhonota
Steller's jay	Cyanocitta stelleri
Scrub jay	Aphelocoma coerulescens
Common raven	Corvus corax
Mountain chickadee	Parus gambeli
Plain titmouse	Parus inornatus
Bushtit	Psaltriparus minimus
Red-breasted nuthatch	Sitta canadensis
White-breasted nuthatch	Sitta carolinensis
Pygmy nuthatch	Sitta pygmaea
Wrentit	Chamaea fasciata
House wren	Troglodytes aedon
Bewick's wren	Thryomanes bewickii

Rock wren	Salpinctes obsoletus
Canyon wren	Catherpes mexicanus
California thrasher	Toxostoma redivivum
Robin	Turdus migratorius
Varied thrush	Ixoreus naevius
Townsend's solitare	Myadestes townsendi
Hermit thrush	Hylocichla guttata
Western bluebird	Sialia mexicana
Mountain bluebird	Sialia currucoides
Ruby-crowned kinglet	Regulus calendula
Phainopepla	Phainopepla nitens
Hutton's vireo	Vireo huttoni
Solitary vireo	Vireo Solitarius
Warbling vireo	Vireo gilvus
Orange-crowned warbler	Vermivora celata
Yellow warbler	Dendroica petechia
Audubon's warbler	Dendroica auduboni
Black-throated gray warbler	Dendroica nigrescens
Hermit warbler	Dendroica occidentalis
Bullock's oriole	Icterus bullockii
Brewer's blackbird	Euphagus cyanocephalus
Western tanger	Pirange ludovidiana
Black-headed grosbeak	Pheucticus melanocephalus
Purple finch	Carpodacus purpureus
Cassin's finch	Carpodacus cassinii
House finch	Carpodacus mexicanus
Pine siskin	Spinus pinus
American goldfinch	Spinus tristis
Lesser goldfinch	Spinus psaltria
Green-tailed towhee	Chlorura chlorura
Rufous-sided towhee	Pipilo erythrophthalmus
Brown towhee	Pipilo fuscus
Sage sparrow	Amphispiza belli-
Oregon junco	Junco oreganus
Black-chinned sparrow	Spizella atrogularis
White-crowned sparrow	Zonotrichia leucophrys
Golden-crowned sparrow	Zonotrichia atricapilla
Fox sparrow	Passerella iliaca
Song sparrow	Melospiza melodia

Sources: Dr. Kenneth E. Stager, Los Angeles County Museum; Sanford R. Wilbur, U.S. Fish and Wildlife Service

FIGURE 16

California Condor Observations, Pine Mountain Area, Ventura Co., California

February 22, 1965 - 1 adult - Reyes Peak - John Borneman
April 10, 1965 - 1 adult - Pine Mtn. Summit, Hwy. 33 - Borneman
May 15, 1965 - 2 unclassified - Reyes Peak - Borneman
September 22, 1965 - 3 adults - Reyes Peak - Borneman
October 5, 1965 - 1 adult - Reyes Peak - Borneman
October 6, 1965 - 2 adults - Reyes Peak (Potrero John Creek) - Borneman
May, 1967 - 1 unclassified - Pine Mtn, Ridge - John Knierim
June 22, 1967 - 1 adult - Reyes Peak - roosting - Borneman
February 5, 1968 - 1 adult, 1 unclassified - Haddock Camp - Mike Farborg
May 15, 1969 - 1 unclassified - Reyes Peak - Borneman
June 24, 1969 - 1 adult - Reyes Peak - P. Nemir
June 25, 1969 - 1 unclassified - Reyes Peak - Nemir
June 26, 1969 - 1 unclassified - Reyes Peak - Nemir
October 15, 1969 - 1 immature - Reyes Peak - W. McGuire, R. Lavender
October 19, 1969 - 1 adult - Boulder Canyon (roosted) - D. Smith
April 4, 1970 - 1 adult - Haddock Camp (roosting) - C. Rust
April 12, 1970 - 1 adult, 1 immature - Pine Mtn. Camp - W. D. Carrier
April 12, 1970 - 2 adults - Reyes Peak, Potrero John Creek - Carrier
April 24, 1970 - 1 unclassified - Haddock Peak (roosting) - R. Dalen, D. Connell
May 29, 1970 - 2 adults - Reyes Creek Camp - J. Splawn
May 28, 1970 - 3 unclassified -Reyes Peak (probably roosting) - Borneman, Wilbur
May 31, 1970 - 3 adults - Pine Mtn. Campground - Nelson Metcalf
June 11, 1970 - 3 adults - Haddock Camp - J. Brown, V. Decker, E. Gregory
August 27, 1971 - 1 adult - Reyes Peak - Borneman
November 4, 1971 - 1 adult - Pine Mtn. Campground - D. King
March 26, 1972 - 1 unclassified - Camp Scheideck - Mrs. J. W. George
May 11, 1972 - 1 adult, 2 unclassified - Reyes Peak - D. Schroeder
May 13, 1972 - 2 adults, Chorro Grande Creek (mine area) - Schroeder
May 15, 1972 - 2 unclassified - Reyes Peak - Schroeder
May 22, 1972 - 2 adults - Piedra Blanca Creek (roosting) - B. Taylor
May 29, 1972 - 1 unclassified - between Haddock & Reyes Pk - Chesnafich
May 30, 1972 - 1 unclassified - Reyes Peak - Schroeder
August 15, 1972 - 1 adult - Piedra Blanca Creek - Borneman
October 5, 1972 - 1 adult - Pine Mtn. Campground - T. Turner
October 26, 1972 - 1 adult - Beaver Campground - T. Turner
April 6, 1973 - 1 unclassified - Beartrap #1 Camp - S. Wilbur
June 5, 1973 - 2 adults - Reyes Creek Camp - J. Livengood

11. Aesthetics

The visual aesthetic quality of the proposed lease area has been evaluated by a team of landscape architects, using the Visual Resource Management (VRM) System - a system for analyzing visual resources developed by the Forest Service.

The analysis system is based upon definition of "variety classes" and "sensitivity levels" for the characteristic landscape being viewed.

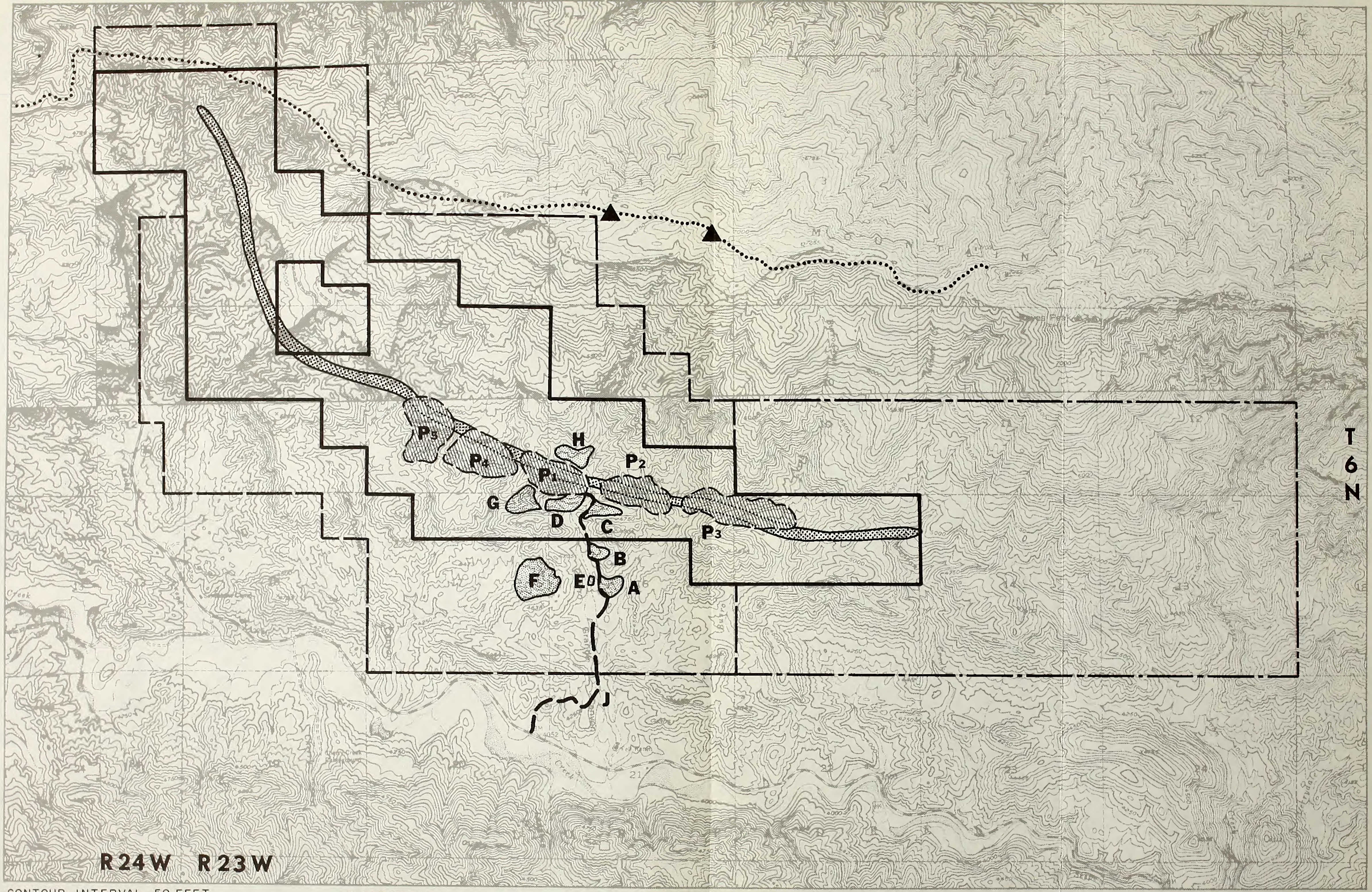
a. Variety class

Variety classes are derived from a classification of the landscape into difference degrees of variety. This classification, based on the premise that landscapes with the greatest diversity possess the highest potential scenic value, divides the landscape into three variety classes:

Class A - Outstanding
Class B - Common
Class C - Uninteresting (monotonous)

The variety classes are derived by analyzing the terrain, vegetation, waterforms, and rockforms, using on-site evaluations and the VRM Handbook.

A series of maps of the proposed lease and surrounding area were prepared to portray the characteristics used in assigning the variety classes (Map 7).



CONTOUR INTERVAL 50 FEET

0 1
SCALE OF MILES

LEGEND

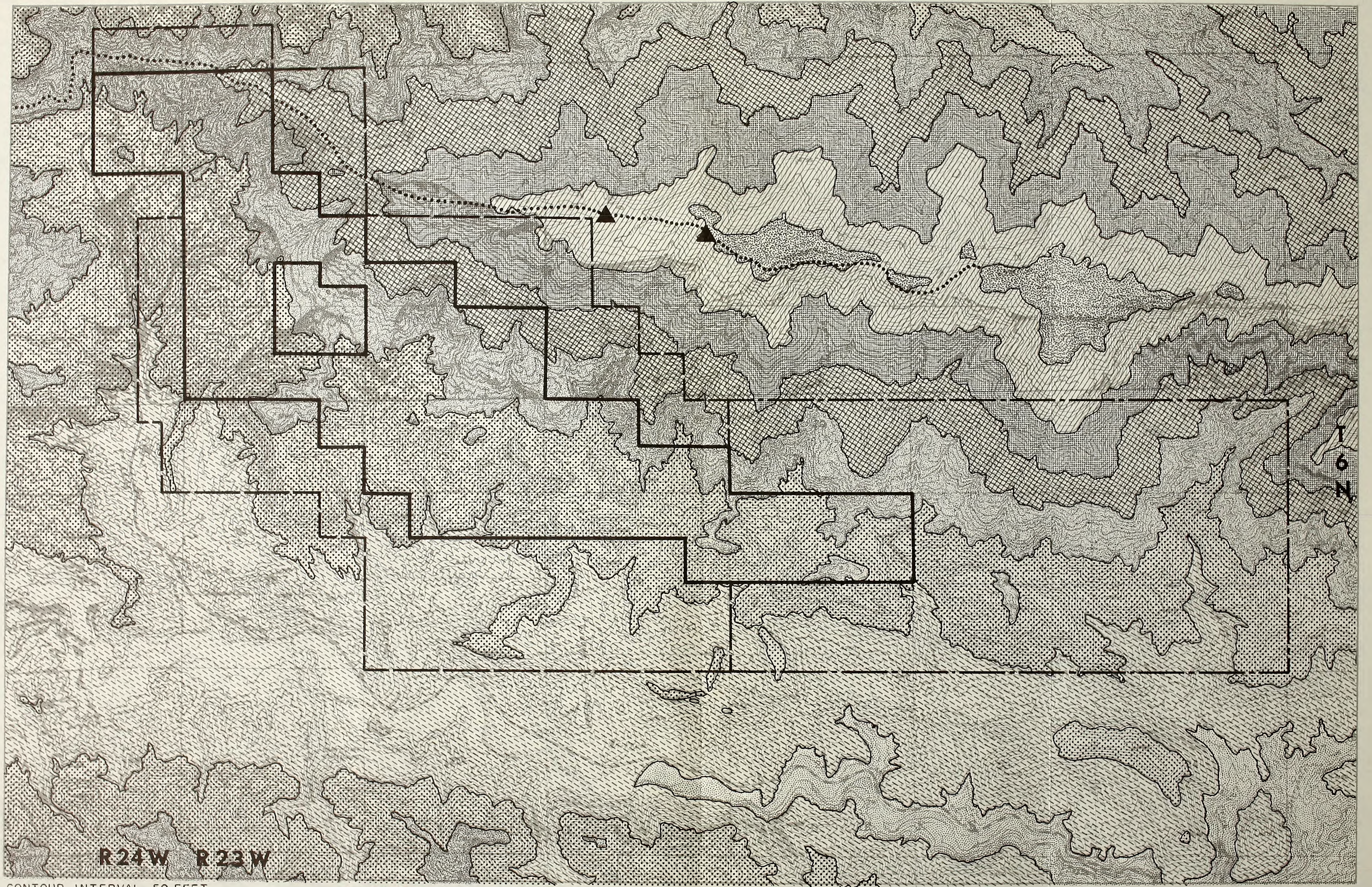
———	Lease Application R-04843
— — —	Prospecting Permit R-2339
—·—·—	Prospecting Permit R-2340
········	Hattie Russell Road
▲	Existing Camp Sites
▨	Mineral Deposit Route
A	Office, Parking, Helicopter Pad
B	Processing, Storage, Packing, Shops
C	Crusher Area and Transfer Point
D	Storage Area
E	Sewage Plant and Water Pond
F	Tailings Area
G	Contoured Spoil Pile
H	Spoil Pile
J	Main Access Road
P_1	Initial Quarry Area
P_2 to P_5	Future Quarry Area

PINE MOUNTAIN PHOSPHATE LEASE APPLICATION R-04843

VISUAL ANALYSIS

MODIFICATION SITES

MAP 7



CONTOUR INTERVAL 50 FEET

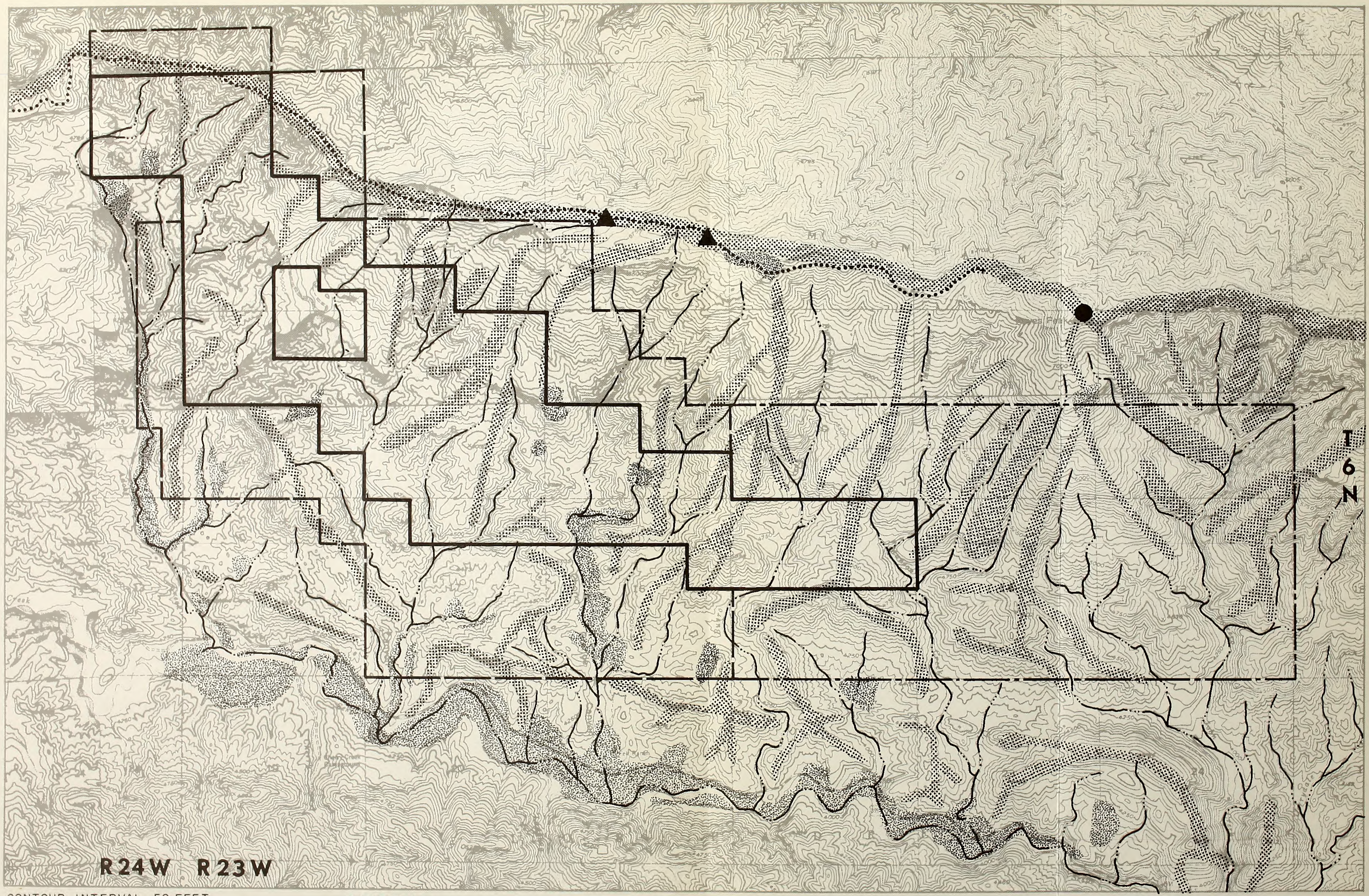
0 1
SCALE OF MILES

LEGEND

━━━ Lease Application R-04843
— — — Prospecting Permit R-2339
— - — Prospecting Permit R-2340
•••••••••• Hattie Russell Road
▲ Existing Camp Sites
░ 3,500 to 4,000 Feet
▧ 4,000 to 4,500 Feet
▒ 4,500 to 5,000 Feet
░ 5,000 to 5,500 Feet
▦ 5,500 to 6,000 Feet
▓ 6,000 to 6,500 Feet
▨ 6,500 to 7,000 Feet
▒ 7,000 to 7,500 and above Feet

PINE MOUNTAIN
PHOSPHATE LEASE APPLICATION
R-04843
VISUAL ANALYSIS
ELEVATION

MAP 8



CONTOUR INTERVAL 50 FEET

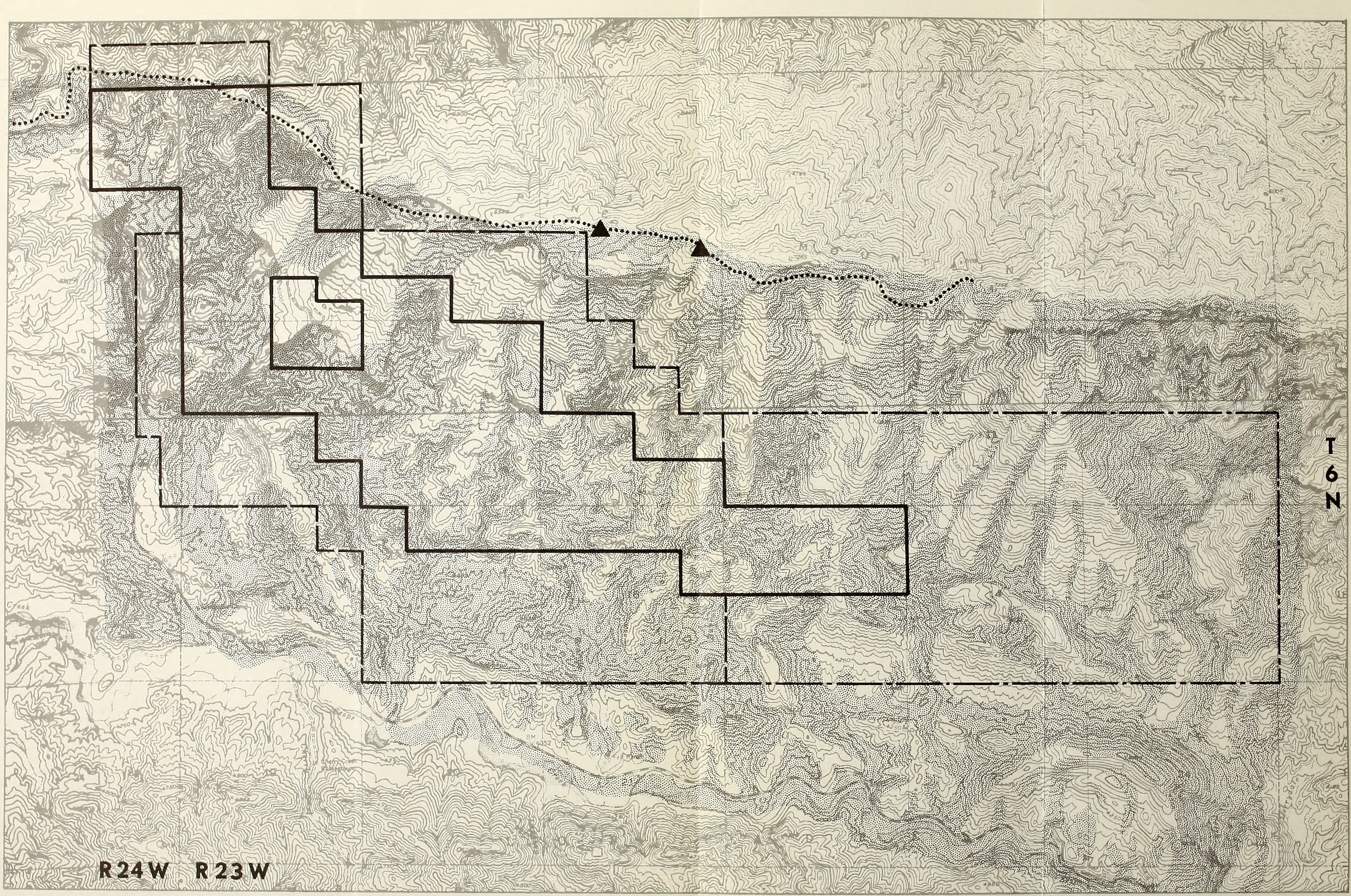
0 — 1
SCALE OF MILES

LEGEND

- —— Lease Application R-04843
- — — Prospecting Permit R-2339
- — · — Prospecting Permit R-2340
- ········ Hattie Russell Road
- ▲ Existing Camp Sites
- ~·· Stream Channel Lands
- ● Mountain Peaks
- ▨ Flat Lands
- ▨ Ridge Lands
- ☐ Slope Lands

PINE MOUNTAIN
PHOSPHATE LEASE APPLICATION
R-04843
VISUAL ANALYSIS
TERRAIN

MAP 9



CONTOUR INTERVAL 50 FEET

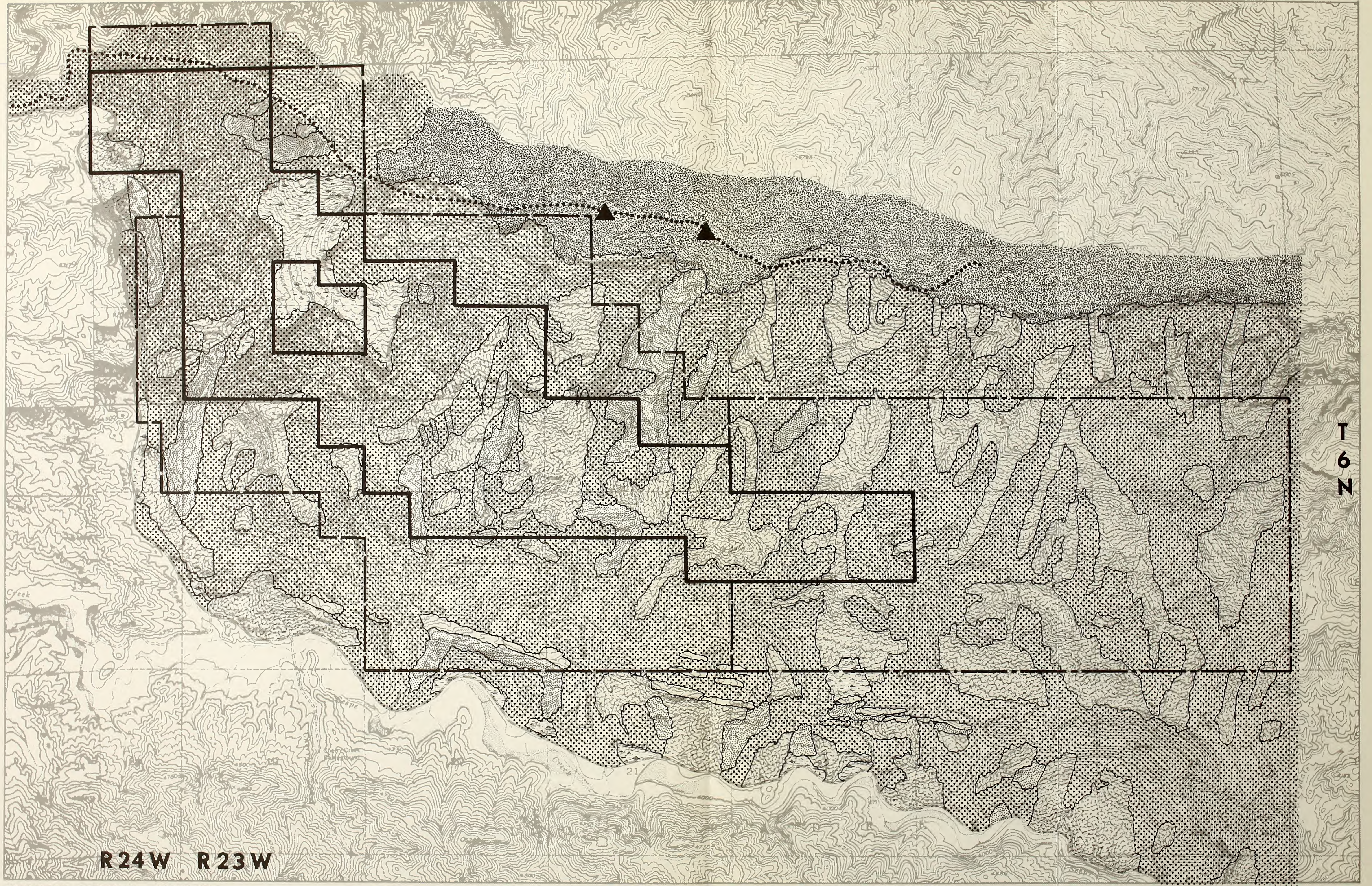
0 1
SCALE OF MILES

LEGEND

- ▬▬▬ Lease Application R-04843
- — — — Prospecting Permit R-2339
- —·— Prospecting Permit R-2340
- ••••••••• Hattie Russell Road
- ▲ Existing Camp Sites
- ▨ Southwest Facing Slopes

PINE MOUNTAIN
PHOSPHATE LEASE APPLICATION
R-04843
VISUAL ANALYSIS
ASPECT

MAP 10



CONTOUR INTERVAL 50 FEET

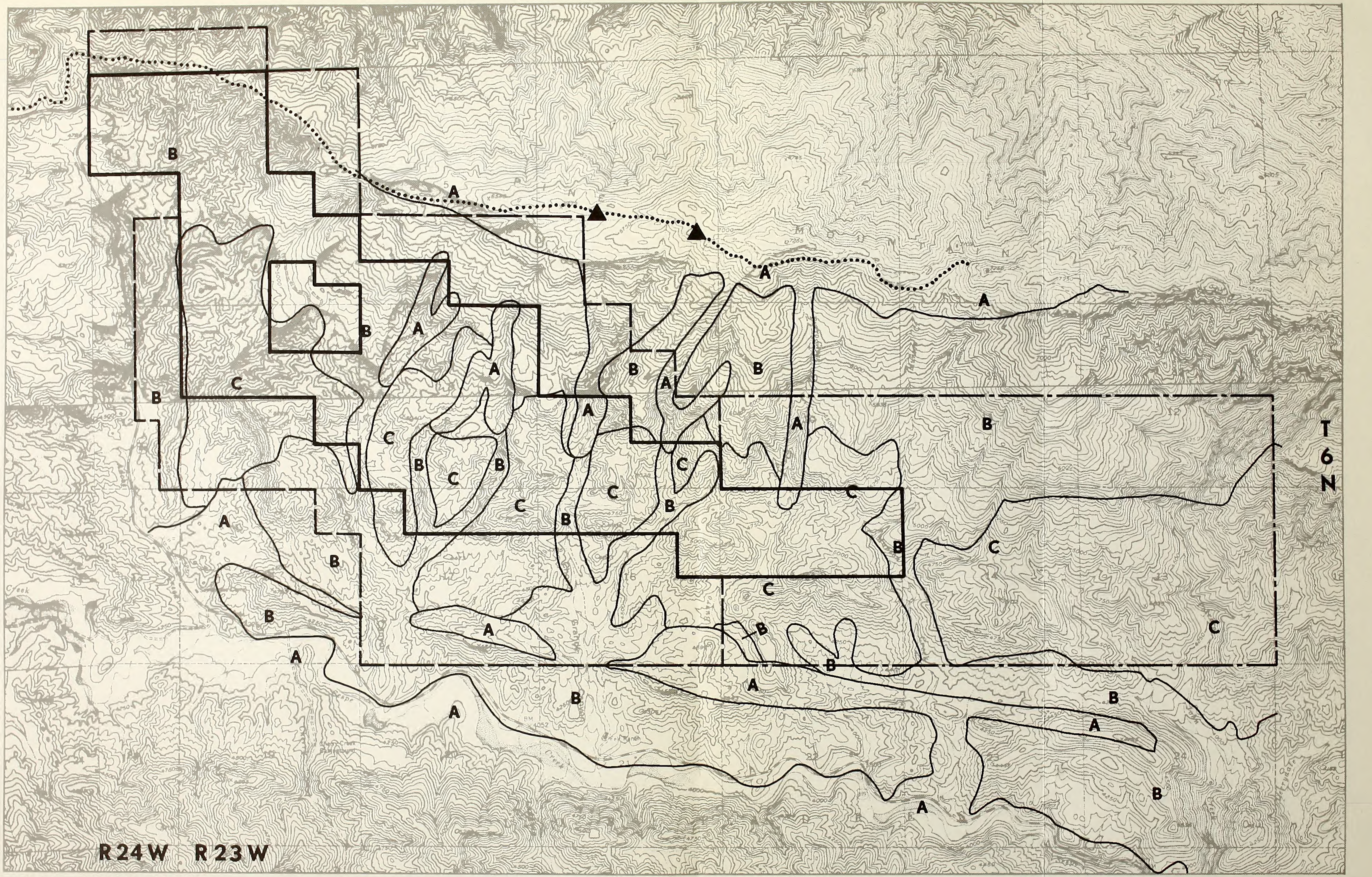
0 — 1
SCALE OF MILES

LEGEND

- ——— Lease Application R-04843
- — — — Prospecting Permit R-2339
- —·—·— Prospecting Permit R-2340
- ········ Hattie Russell Road
- ▲ Existing Camp Sites
- ☐ Barren
- ▨ Grass
- ▨ Sparse Brush
- ▨ Moderate Brush
- ▨ Dense Brush and/or Trees
- ▨ Timber

PINE MOUNTAIN
PHOSPHATE LEASE APPLICATION
R-04843
VISUAL ANALYSIS
VEGETATION

MAP 11



CONTOUR INTERVAL 50 FEET

LEGEND

- Lease Application R-04843
- Prospecting Permit R-2339
- Prospecting Permit R-2340
- Hattie Russell Road
- ▲ Existing Camp Sites

A Outstanding
B Common
C Monotonous

0 1
SCALE OF MILES

PINE MOUNTAIN
PHOSPHATE LEASE APPLICATION
R-04843
VISUAL ANALYSIS
VARIETY CLASS

MAP 12

(1) Elevation

This map (Map 8), showing landform patterns at 500-foot intervals, provides a general overview of the area's topography. The proposed lease area lies on the southern flank of Pine Mountain, generally between the 4500- and 6000-foot contours. The western end of the proposed lease crosses the top of the ridgeline, while most of the lease area is positioned approximately mid-way on the slope between the crest and Sespe Creek.

The two prospecting permit areas extend considerably farther up- and down-slope than does the proposed lease area.

(2) Terrain

The terrain map (Map 9) delineates landform zones into five classes: stream channellands, mountain peaks, flatlands, ridgelands and slopelands. As can be seen on the map, the proposed lease area lies predominantly on slopelands; the only flatlands portion lies along the Chorro Grande Creek bottom. Stream channels cross the area at about 1/2-mile intervals, and southwesterly trending ridges break the area up into irregular units.

(3) Aspect

This map (Map 10) was derived from Geological Survey topographic maps. It indicates the area of southwest exposure, which is susceptible to the greatest drying and therefore has the least potential for revegetation of disturbances and screening of visual impacts. Most of the lease area falls within the southwest aspect zone.

(4) Vegetation

The vegetation map (Map 11) classifies the area's vegetation into six categories: barren, grass, sparse brush, moderate brush, dense brush and timber. This map was derived from the aspect overlay and aerial photography.

The above factors were used to arrive at a synthesis - the variety class. The variety class map (Map 12) indicates that the "outstanding" variety class is found along the crest of Pine Mountain, in the upper reaches of the stream channellands, along the sandstone ridge lying between the lease area and Highway 33, and along Sespe Creek.

The "common" variety class includes those lands along the lower stream channels, the upper and lower slopes of Pine Mountain, and the area between the Sespe Formation sandstone ridge and Highway 33.

The "monotonous" class includes most of the intermediate slopes along Pine Mountain.

Within the specific area of the proposed lease, the upper portions of Chorro Grande, Godwin, and Adobe Creeks have been given an outstanding variety class designation. The upper portions of Burro and Munson Creeks have also been classified as outstanding, but only minute portions of these classes extend into the lease area.

In the remainder of the lease area, the lower stream channels of Adobe, Godwin and Chorro Grande Creeks were classified as "common". The "monotonous" variety classification was applied to the remaining slopelands in the lease area.

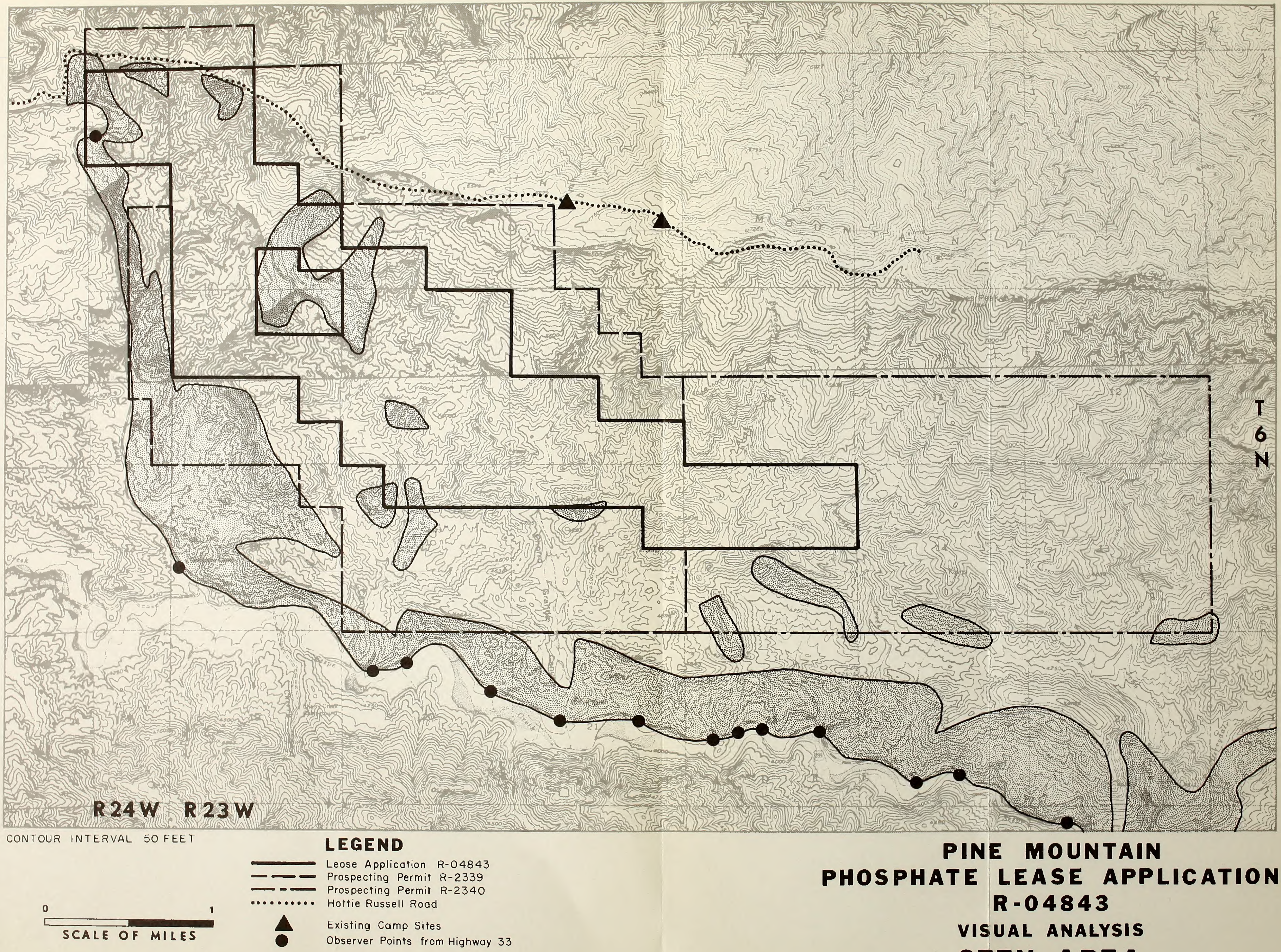
b. Sensitivity level

Sensitivity levels are determined for land areas viewed by those who: are traveling through the area on developed roads and trails, are utilizing campgrounds, or are recreating along water bodies.

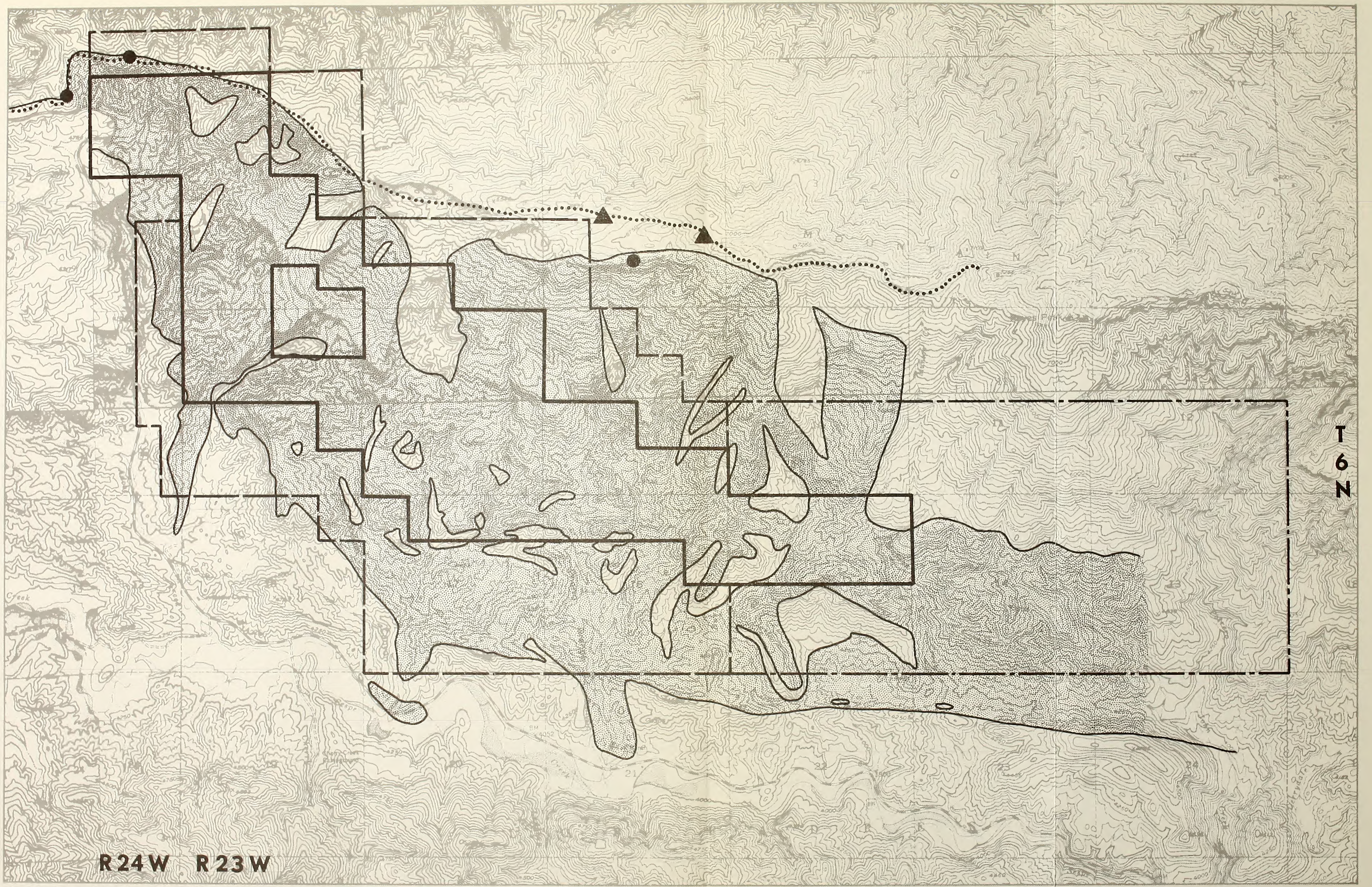
The first step in determining sensitivity level is to identify the area that can be seen from travel route, use area, and water bodies. Map 13 portrays the "seen area" from Highway 33, while the area that can be seen from the Hattie Russell Road and Pine Mountain recreation sites is shown on Map 14. A relatively small portion of the lease area is visible from Highway 33. Almost the entire area, however, is visible from Pine Mountain.

The area is divided into foreground and middleground areas in relation to observer position. Sensitivity levels are next assigned, based on use volume, duration of use, type of access, and importance of the route or area.

A small portion of the lease area (Map 15) cannot be seen from either Highway 33 or Pine Mountain. The west end of the lease area falls in the foreground distance zone, as viewed from Highway 33 and Pine Mountain. The remainder lies within the middleground distance zone. Most


R24W R23W
T 6 N
CONTOUR INTERVAL 50 FEET
0
1
SCALE OF MILES
LEGEND
Lease Application R-04843
Prospecting Permit R-2339
Prospecting Permit R-2340
Hattie Russell Road
Existing Camp Sites
Observer Points from Highway 33

PINE MOUNTAIN
PHOSPHATE LEASE APPLICATION
R-04843
VISUAL ANALYSIS
SEEN AREA



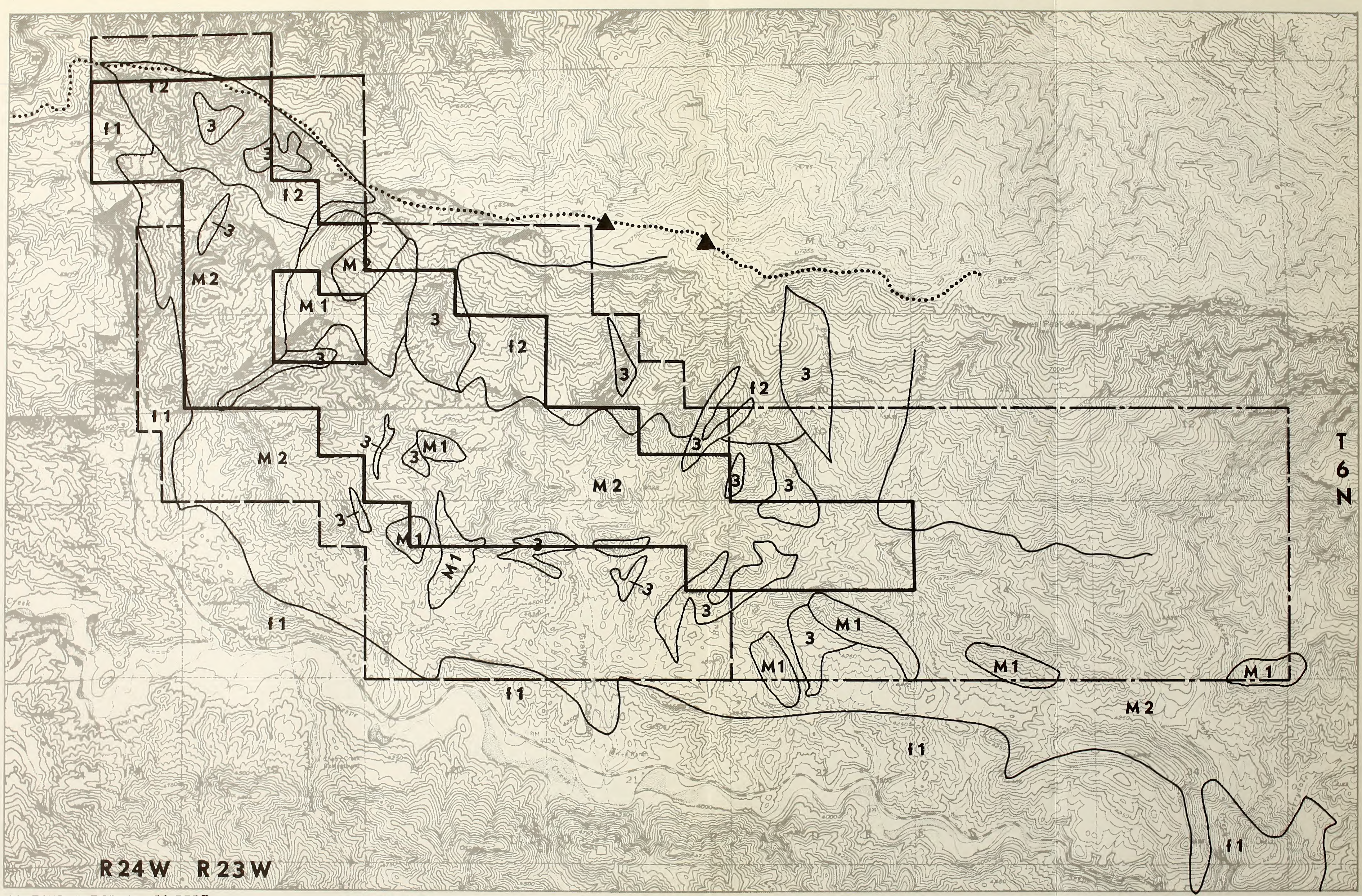
CONTOUR INTERVAL 50 FEET

LEGEND

▬▬▬	Lease Application R-04843
— — —	Prospecting Permit R-2339
— · —	Prospecting Permit R-2340
·········	Hattie Russell Road
▲	Existing Camp Sites
●	Observer Points from Pine Mountain

PINE MOUNTAIN
PHOSPHATE LEASE APPLICATION
R-04843
VISUAL ANALYSIS
SEEN AREA

MAP 14



CONTOUR INTERVAL 50 FEET

0 1
SCALE OF MILES

LEGEND

- Leose Applicotion R-04843
- Prospecting Permit R-2339
- Prospecting Permit R-2340
- Hottie Russell Road
- ▲ Existing Camp Sites

SENSITIVITY LEVELS

1 High
2 Moderate
3 Not Seen

DISTANCE

f Foreground
M Middleground

PINE MOUNTAIN PHOSPHATE LEASE APPLICATION R-04843

VISUAL ANALYSIS

VISUAL SENSITIVITY AND DISTANCE

of the area is classified as being moderate in sensitivity; however, high sensitivity level areas occur throughout the lease area.

12.Noise

Ambient noise levels have not been measured in the Pine Mountain area. The United Water Conservation District of Ventura County contracted with Bolt, Beranek and Newman, Inc., in 1965, for a study titled the Noise Environment of the California Condor. This study was conducted in connection with the proposed Topatopa Reservoir on Sespe Creek, about 20 miles downstream (east) from the proposed Pine Mountain phosphate lease. Conditions in the Topatopa area differ somewhat from those at Pine Mountain. Measurements of ambient noise levels were taken on north-facing slopes. The fact that Highway 33 parallels Sespe Creek in the vicinity of Pine Mountain, while the Topatopa site is entered by a low standard dirt road, also constitutes a significant difference between the sites. Aircraft traffic levels have increased since 1965, but this would affect the duration of noise rather than the sound pressure level. Therefore, there are differences between the two sites, but the Bolt, Beranek and Newman study remains the best source of information on ambient noise levels in the general area.

"The existing noise level of the Sespe Wildlife Area consists of natural background noise of a relatively low level, plus a considerable amount of aircraft flyover noise and occasional sonic booms." (Bolt, Beranek and Newman, Inc., 1965).

FIGURE 17. SUMMARY OF BACKGROUND NOISE OBSERVATIONS IN THE VICINITY OF THE SESPE WILDLIFE AREA

(FROM BOLT BERANEK AND NEWMAN, INC.)

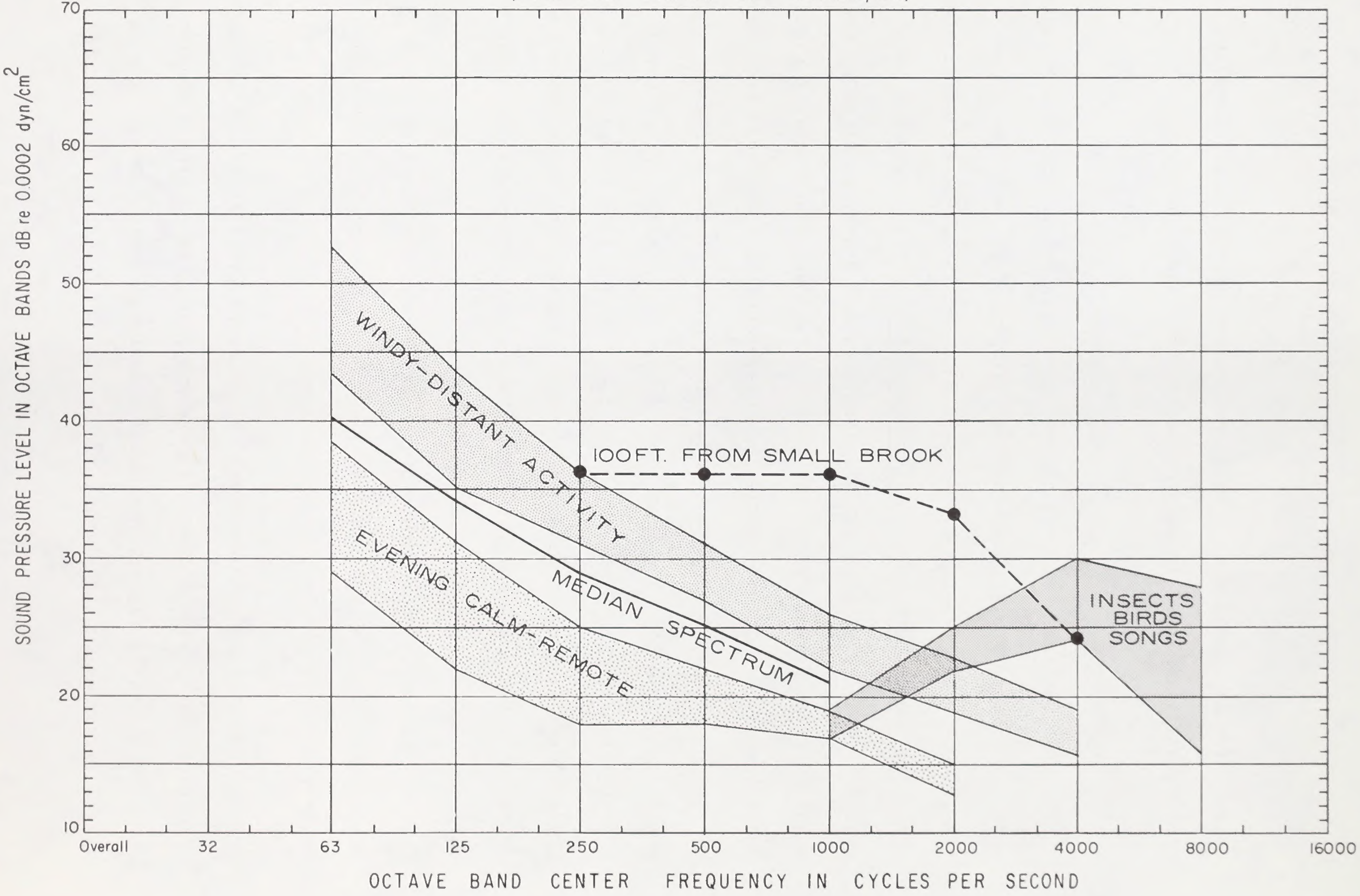
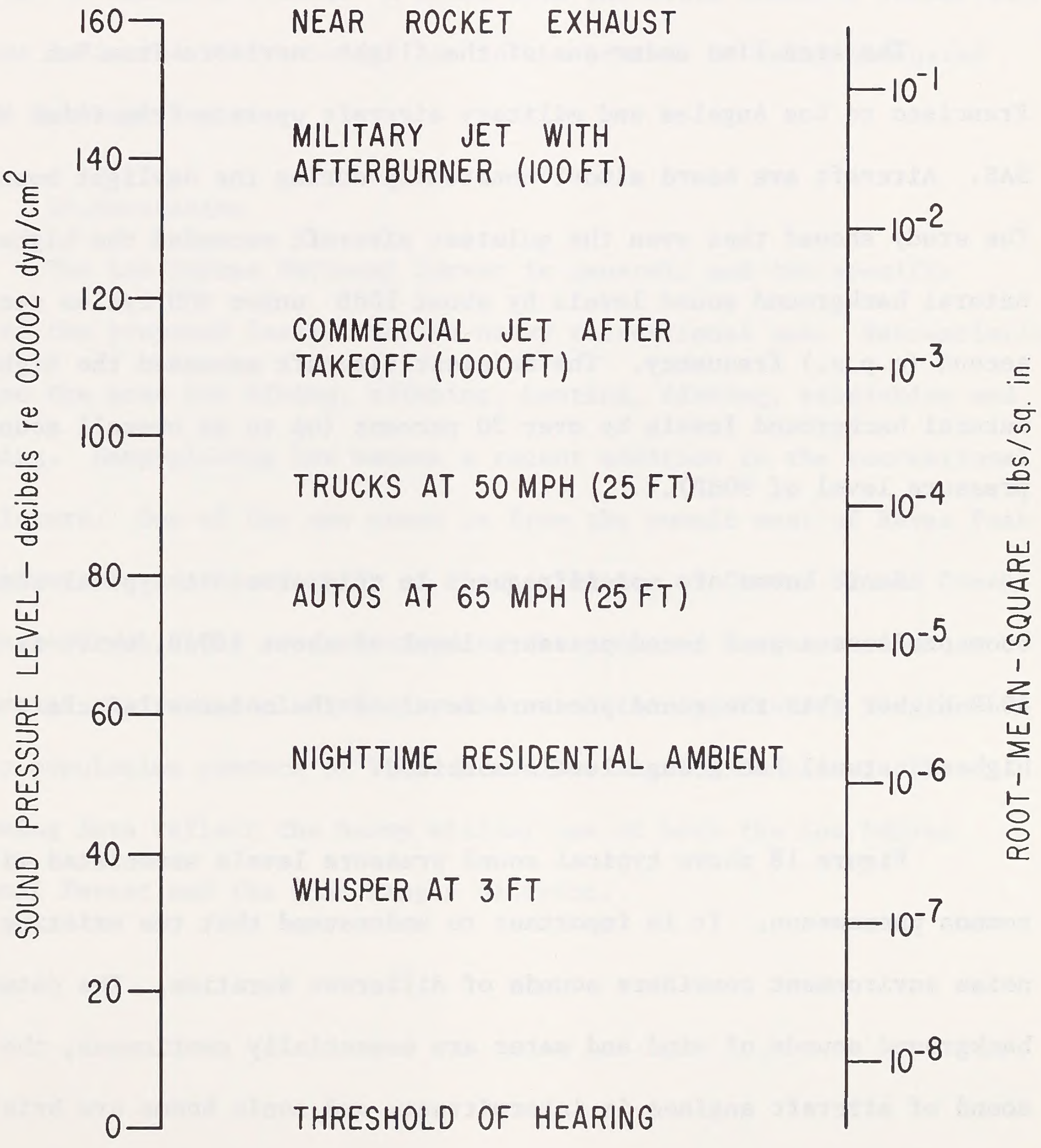


FIGURE 18.

TYPICAL SOUND PRESSURE LEVELS

(FROM BOLT, BERANEK AND NEWMAN, INC.)



Overall natural background sound pressure levels ranged from a level of 39dB to 57dB. Measurements taken during calm evenings ranged from 39dB to 43dB, during windy evenings sound pressure levels ranged from 48dB to 57dB. Sound pressure levels were highly variable with frequency (Figure 17).

The area lies under one of the flight corridors from San Francisco to Los Angeles and military aircraft operate from Point Mugu NAS. Aircraft are heard almost constantly during the daylight hours. The study showed that even the quietest aircraft exceeded the highest natural background sound levels by about 10dB under 500 cycles per second (c.p.s.) frequency. The noisiest aircraft exceeded the highest natural background levels by over 30 percent (up to an overall sound pressure level of 90dB).

Sonic booms are not infrequent in this area. A typical sonic boom produces a peak sound pressure level of about 130dB, which is about 40dB higher than the sound pressure level of the noisiest aircraft and highest natural background levels combined.

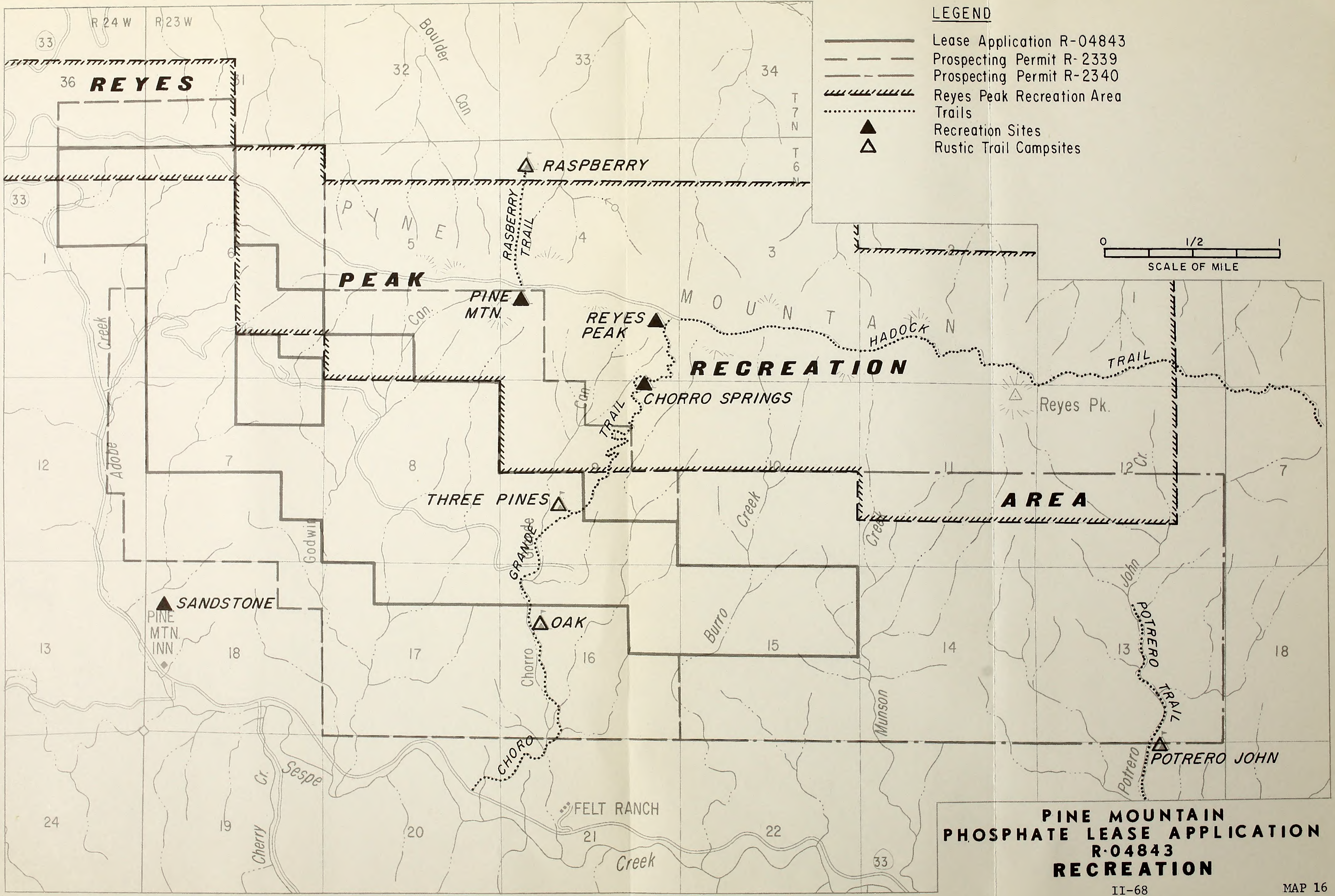
Figure 18 shows typical sound pressure levels associated with common phenomenon. It is important to understand that the existing noise environment considers sounds of different duration. The natural background sounds of wind and water are essentially continuous, the sound of aircraft engines is intermittant, and sonic booms are brief in duration.

13. Cultural and historic values

A reconnaissance survey, conducted by Forest Service archaeologists in the summer of 1974, did not result in identification of any cultural or historic sites. There are no sites listed on the National Register of Historic Places. A check with the State Historic Preservation Officer indicated that no sites are in the process of being nominated to the National Register.

14.Recreation

The Los Padres National Forest in general, and the specific area of the proposed lease, receive heavy recreational use. Recreationists utilize the area for hiking, climbing, hunting, fishing, picnicking and swimming. Hang-gliding has become a recent addition to the recreational use picture. One of the use areas is from the summit west of Reyes Peak to Highway 33, in the vicinity of the confluence of Chorro Grande Creek and Sespe Creek. The area surrounding the proposed lease provides an element of environmental diversity and aesthetic opportunity for the nearby population centers of Ventura and Los Angeles Counties. The following data reflect the heavy visitor use of both the Los Padres National Forest and the Ojai Ranger District.



PINE MOUNTAIN
PHOSPHATE LEASE APPLICATION
R-04843
RECREATION

MAP 16

FIGURE 19

Recreation in Los Padres National Forest (1973 Use Estimates)

Activity	Visitor Days
Camping	1,094,300
Hunting	151,800
Fishing	68,400
Road Travel	724,700
Trails (hiking and horse)	228,200
Other	837,100
Total Forest Use	3,104,500

Recreation in Ojai District (1973 Use Estimates)

Activity	Visitor Days
Camping	257,600
Hunting *	21,600
Fishing **	29,500
Road Travel	88,900
Trails (hiking and horse)	69,300
Other (shooting, picnics, swimming, etc. in undeveloped areas)	128,300
Total Use	545,200

* There was a 167% increase in hunting use since 1968
** There was a 28% increase in use for fishing since 1968

A plan for the Reyes Peak Recreation Area was approved in September, 1964. The Recreation Area (Map 16) covers 5380 acres along the ridgetop, the Pine Mountain - Reyes Peak Ridge, that forms the divide between the Cuyama and Sespe Creek drainages. It includes most of the coniferous forest type. While the majority of the area is steep and rugged, between 90 and 150 acres are suitable for development as campgrounds. Approximately 15 percent of the proposed lease falls within the Recreation Area.

There are eight camp sites and four trails within or near the proposed lease area (Map 16). A summary of the type of facility and its location in relation to the proposed lease area includes:

Site	Type	Lease Area	Pros. Permit R-2339	Pros. Permit R-2340	Outside
Pine Mtn.	Recreation Site		X		North of R-2339
Reyes Peak	Recreation Site				North of R-2339
Chorro Spr.	Recreation Site				South of R-2339
Sandstone	Recreation Site				
Oak	Rustic Trail Campsite		X		
Three Pines	Rustic Trail Campsite	X			
Potrero John	Rustic Trail Campsite				South of R-2340
Raspberry	Rustic Trail Campsite		X		
Chorro Grande	Trail (23W05)	X	X		X
Raspberry	Trail (23W42)		X		X
Haddock	Trail (23W04)				X
Potrero John	Trail (23W06)			X	X

The Chorro Grande hiking trail provides the only direct route from Highway 33, north to Pine Mountain. There are three small camps on the trail: Oak, Three Pines, and Chorro Springs. It is estimated that in 1973 these camps received 4,600 visitor use days. The Chorro Grande hiking trail passes through the middle of the proposed lease area.

Almost all recreation users enter the area on Highway 33. Two sections of Highway 33, between Wheeler Springs and Chorro Grande Canyon, and from Pine Mountain Summit to Ozena Road (the portions passing through Federal land) have been designated as part of the State's Scenic Highway System.

According to a 1968 Transportation Study made by the Ventura County Department of Public Works, the origin of Ventura County's recreation users can be broken down as follows:

1. 53% Ventura County
2. 33% Los Angeles County and points east
3. 14% Santa Barbara, San Luis Obispo, and Kern Counties (and points north and west)

The lower reaches of Sespe Creek are known for aesthetic values and are considered to be one of the most productive trout fisheries in the Los Padres National Forest. There are no fishing waters in the proposed lease area, but below the area there are 54 miles of fishing streams, including 40 miles on the main Sespe and 14 miles on its tributaries.

15. Human Population

In 1970, Ventura County had a population of 378,497. Over fifty-eight percent of the population resided in the southern Ventura County communities of Ventura, Oxnard, Thousand Oaks and Simi Valley. The remainder of the population was primarily scattered throughout the smaller communities and unincorporated areas, along the coastal plain and in the foothill regions of the southern half of the county.

The north half, generally that portion of the county running from the north end of Ojai to the Kern County line, had a 1970 population of 340, comprising less than 0.1% of the total county population. By 1974, this portion of the county's population was estimated to have increased to 383. The proposed Pine Mountain phosphate mine lies in this northern portion of the county.

Ventura County has been undergoing a period of rapid population expansion. The Ventura area, for instance, had a rate of growth approximately twice the state's rate in the 1950's, increasing to more than three times the state's rate during the 1960's. The percentage growth rate for Ventura County from 1960 to 1970 was 90%.

Almost all of this expansion, however, has taken place in the southern half of the county, which lies adjacent to the Los Angeles metropolitan area. Phase II of Ventura County's North-Half General Plan (1973) depicts the county's past population growth in the following terms "...Between 1960 and 1970, there was an increase of only 46 people in the north half; this figure contrasts vividly with the population increase of 197,000 in the southern half of Ventura County in the same time period. The growth of the south half is based on an assortment of factors such as proximity to the Los Angeles Basin, available services and public facilities, and a history of steady growth. The north half has not shared these growth inducing characteristics..."

The north half is much too large an area, with too low a population, to draw relevant conclusions from the generalized census tract data (portrayed in General Social and Employment Characteristics of Ventura County) published by the Ventura County Planning Department. It is, however, possible to infer that both the male and female labor force consists of less than 100 workers in the north half. Mean income in this portion of the county falls in the $10,000-$12,000 range. The school age population of the north half is currently less than 50.

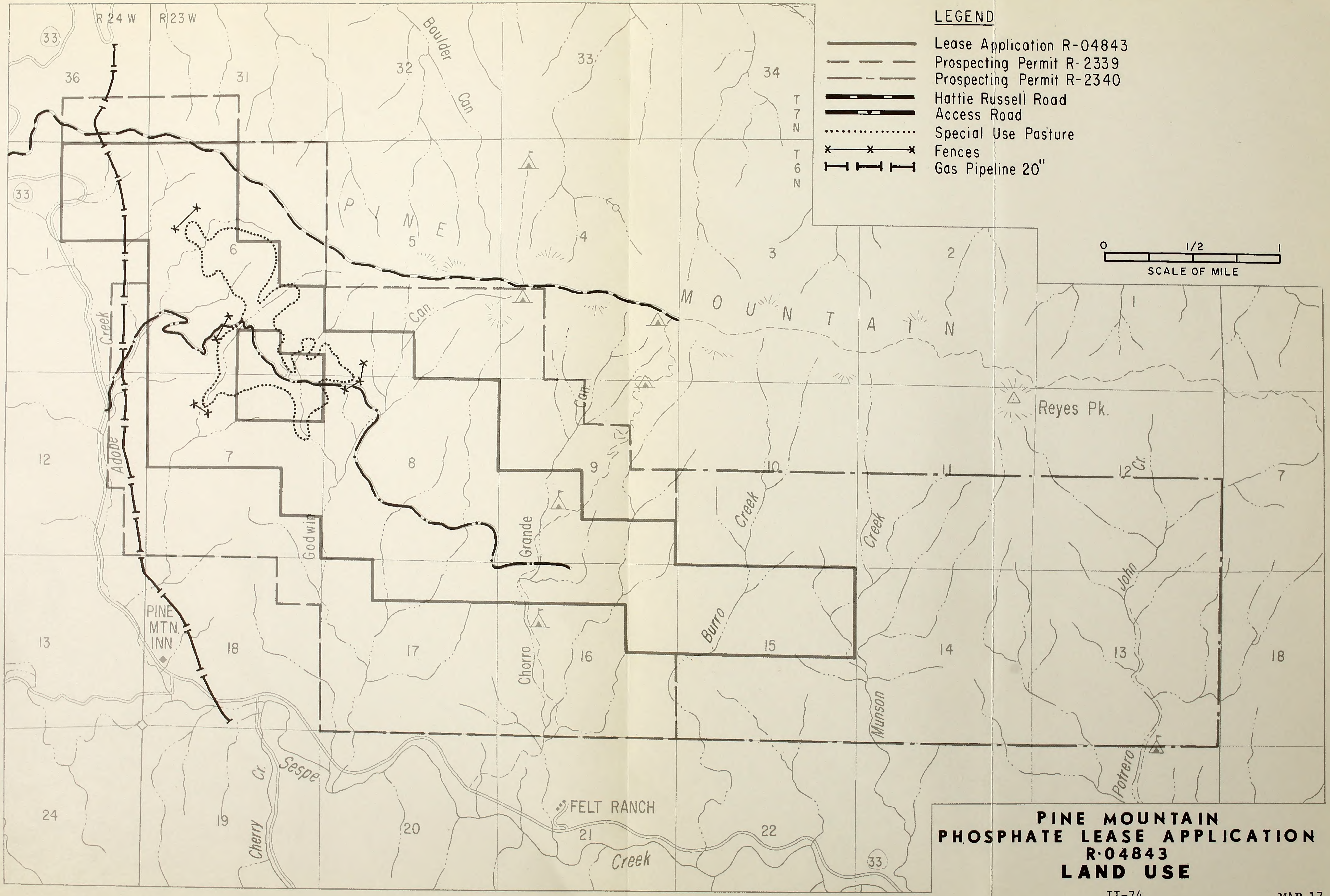
The population in the vicinity of Pine Mountain is located entirely along Sespe Creek and Highway 33. An estimated 20 people reside in the area (Figure 20).

16. Land Use

a. Present Use

(1) Private Lands

Little actual growth has occurred in the north half. As noted in the preceding section, total population is low and population growth has been far below the pace set by the southern half of the county.



PINE MOUNTAIN
PHOSPHATE LEASE APPLICATION
R·04843
LAND USE

MAP 17

FIGURE 20

ESTIMATED POPULATION IN THE VICINITY OF THE PROPOSED PINE MOUNTAIN PHOSPHATE PLANT

Distance from Proposed Plant Site	Quadrant N	E	S	W	TOTAL
5 miles	20	0	20	10	50
10 miles	50	20	100	20	190

FIGURE 21

NUMBER OF INDUSTRIAL PLANTS IN THE VICINITY OF THE PROPOSED PINE MOUNTAIN PHOSPHATE PLANT

Distance from Proposed Plant Site	Quadrant N	E	S	W	TOTAL
5 miles	0	0	0	0	0
10 miles	0	0	0	0	0
20 miles	1*	0	**	0	1+

* Monolith Gypsum Mine, in Quatal Canyon, near the Kern County line.

** There are numerous industrial plants in the southern quadrant within 20 air miles of the proposed phosphate plant. A circle of a 20-mile radius includes the eastern outskirts of Santa Barbara, the suburb of Carpenteria, the oilfields north of Ventura (San Buenaventura), and the towns of Meiners Oaks and Ojai.

Another indicator of growth is the number of building permits issued over a period of time. The Phase II Study indicated that 64,445 permits were issued in the entire county between 1960 and 1970; only 42 of these permits were issued in the north half.

Furthermore, the small amount of development that has occurred is not uniformly dispersed throughout the north half, but has been concentrated in the few areas, such as Hungry Valley, and Lockwood Valley, that contain relatively extensive blocks of developable private land.

Two subdivisions platted in the Lockwood Valley illustrate the general trend of development in the north half of the county. The Lebec Forest and Lockwood Park tracts were platted in 1922. Since 1922, little building activity has occurred. There were only 25 building permits issued from 1960-1966 in these areas for residential use.

Land division has been more prevalent in the north half than has subdivision. Land divisions into four or less parcels of five acres or more have been exempt from most subdivision regulations.

The land use picture in the north half, in general, and the area in the vicinity of Pine Mountain, in particular, is dominated by the overwhelming preponderance of public lands administered by the Forest Service. For instance, the question of access to subdivisions or land divisions poses some unique conditions. The Forest Service maintains that the county should not consider a road on National Forest land as constituting adequate access to a subdivision or land division unless (a) the road is part of a public agency road system, and (b) the landowner has obtained a right-of-way from the Forest Service.

The climate of the north half, strongly influenced by the mountainous topography, is another factor which has helped to shape current land use. The marine influence is minimal. Temperatures in the Lockwood Valley have ranged from -8° to 99° F. and since 1961 freezing temperatures have occurred in each month of the year. Extremes in precipitation are also typical; total precipitation has varied from 4 to 91 inches.

In the immediate Pine Mountain area there are only three developed areas on private land: the Pine Mountain Inn, the Felt Ranch and the Upper Hartman Ranch. All of these developments are over 20 years old.

(2) National Forest

The Los Padres National Forest is the second largest forest in California with 1,964,390 acres within its boundaries. Of this amount, about 194,161 acres are privately owned. All National Forests of the United States are managed by the Forest Service, an agency of the Department of Agriculture. The National Forests are managed under the multiple-use concept, giving consideration to the management of all forest values, including: wood, water, wildlife, forage, and recreation.

FIGURE 22

Relative acreage and use of Ranger Districts CY 73

	Size (acres)	% Forest	Visitor Use Days	% Total Forest
1. Monterey	302,782	17.3	752,300	24.2
2. Santa Lucia	264,171	26.5	307,500	9.9
3. Santa Barbara	232,009	13.3	649,000	20.9
4. Ojai	287,700	16.4	545,200	17.6
5. Mt. Pinos	463,587	26.5	850,500	27.4
TOTAL	1,750,229	100.0%	3,104,500	100.0%

The proposed lease area lies within the Ojai Ranger District. This area is managed as a "distant view" area, with the goal of maintaining an aesthetically acceptable landscape. Within the Ojai District, the areas of highest recreational values are along the Sespe Creek and in the Pine Mountain - Reyes Peak area. There are several other existing land uses on National Forest land within the lease area (Map 17).

A buried twenty-inch gas pipeline that originates in the Atlantic Richfield (ARCO) oil field near New Cuyama and runs to Ventura, proceeds southerly in the western portion of the lease and prospecting permit areas from the SE-1/4 of Section 36, T. 7N., R. 24W., through the E-1/2 Section 1, E-1/2 Section 12, NE-1/4 Section 13, T. 6N.,R. 24W. and thence through the W-1/2 of Section 18, T. 6N., R. 23W.

The Forest Service has proposed an administrative site in the NE-1/4 Section 1, T. 6N., R. 24W. The purpose was to construct a fire suppression station in that portion of the quarter section, lying west of a loop of Highway 33, in the SW-1/4, NW-1/4 and SW-1/4 of the NE-1/4 Section

1, T. 6N., R. 24. This proposed administrative site lies within the proposed lease area.

A special use pasture under a Forest Service permit to George and Edith Payne, allowing a 42 AUM capacity during a grazing period from September 16 to January 31, is located in portions of Sections 5, 6, 7, and 8 - T. 6N., R. 23W. This special use pasture consists of 85 acres and includes drift fences and gates across the access road to Oak Campground. This pasture lies within the proposed lease site.

A Forest Service special use permit has been issued to James Wickerd for the purpose of operating and maintaining an apiary site in the NW-1/4, SW-1/4 Section 36, T. 6N., R. 23W. This apiary site is located approximately 2-1/2 miles south of the area of prospecting permit R-2340.

b. Land Use Planning and Controls

(1) Ventura County

The State of California, in the State Planning Act, requires that nine individual elements be included in city and county general plans - land use, circulation, housing, conservation, open space, seismic safety, noise, scenic highways and safety. The first two elements have been required since 1955, the housing element since 1969. Conservation and open space elements had a deadline for incorporation into general plans of December, 1973. A deadline of September, 1974 was set for completion of the remaining elements (Ventura County has received an extension of this completion date to December, 1974). Since January 1, 1974, a requirement has been in effect that zoning must be consistent with the general plan.

The general plan is a statement of long-range public policy and is intended to provide the base for evaluating and guiding decisions. It is a statement of the county's commitment to achieve certain social, economic, and environmental goals and objectives. It is the official statement of county policy regarding the nature and quality of development in the planning area.

The Ventura County Phase II Plan was presented to the Board of Supervisors on September 19, 1972. The final version of the plan was adopted by the Board of Supervisors on February 20, 1973. It is now, therefore, the current statement of official county policy on development of the north half of the county. While the county does not have jurisdiction over development of National Forest lands, the county and the Forest Service have closely cooperated in all aspects of planning.

The Phase II planning effort reached two general conclusions about development in the north half of the county: (1) "Public service resources available for major development in the north half are severely limited, and the natural resources of the north half are maintained in a generally delicate balance; (2) Almost inevitably, development will have a negative impact on existing public service and a disruptive influence on the maintenance of the natural resource or ecological balance of the north half"(Ventura County Planning Department, 1973).

The Phase II Study resulted in several policy recommendations. These were then incorporated into a revised general plan, which was adopted by the Planning Commission and the Board of Supervisors.

The policies recommended by the study team and adopted by the Board of Supervisors include the following:

1. It is recommended that the Board of Supervisors adopt a policy of limited development in the north half.
2. It is recommended that the Board of Supervisors recognize the integrity of existing land uses and lots in the north half.
3. It is recommended that the Board of Supervisors recognize two types of limited land uses as appropriate for consideration in the north half.
    - a. Limited Residential - Limited residential uses comprise:
        - (i) Presently existing land uses
        - (ii) The existing zoning within limited residential areas; present zoning is primarily Residential Exclusive (R-E) and Rural Agricultural (R-A).
    - b. Limited Recreational - Limited recreational uses comprise:
        - (i) Presently existing land uses
        - (ii) Those lands that will be analyzed for possible rezoning to densities of 5-, 10-, and 20-acre zoning classifications.
4. It is recommended that the Board of Supervisors direct the Planning Staff to prepare the necessary material to appropriately rezone portions of the north half, using the following criteria;

a. Areas designated as limited residential and ranking high in the grid analysis are to retain their existing zoning.

b. Areas designated as limited recreational and ranking low in the grid analysis are to be rezoned to very low density zones.

c. Existing land uses will retain existing zoning.

Several other recommendations relating to plan revision and recreation vehicle use are not discussed here.

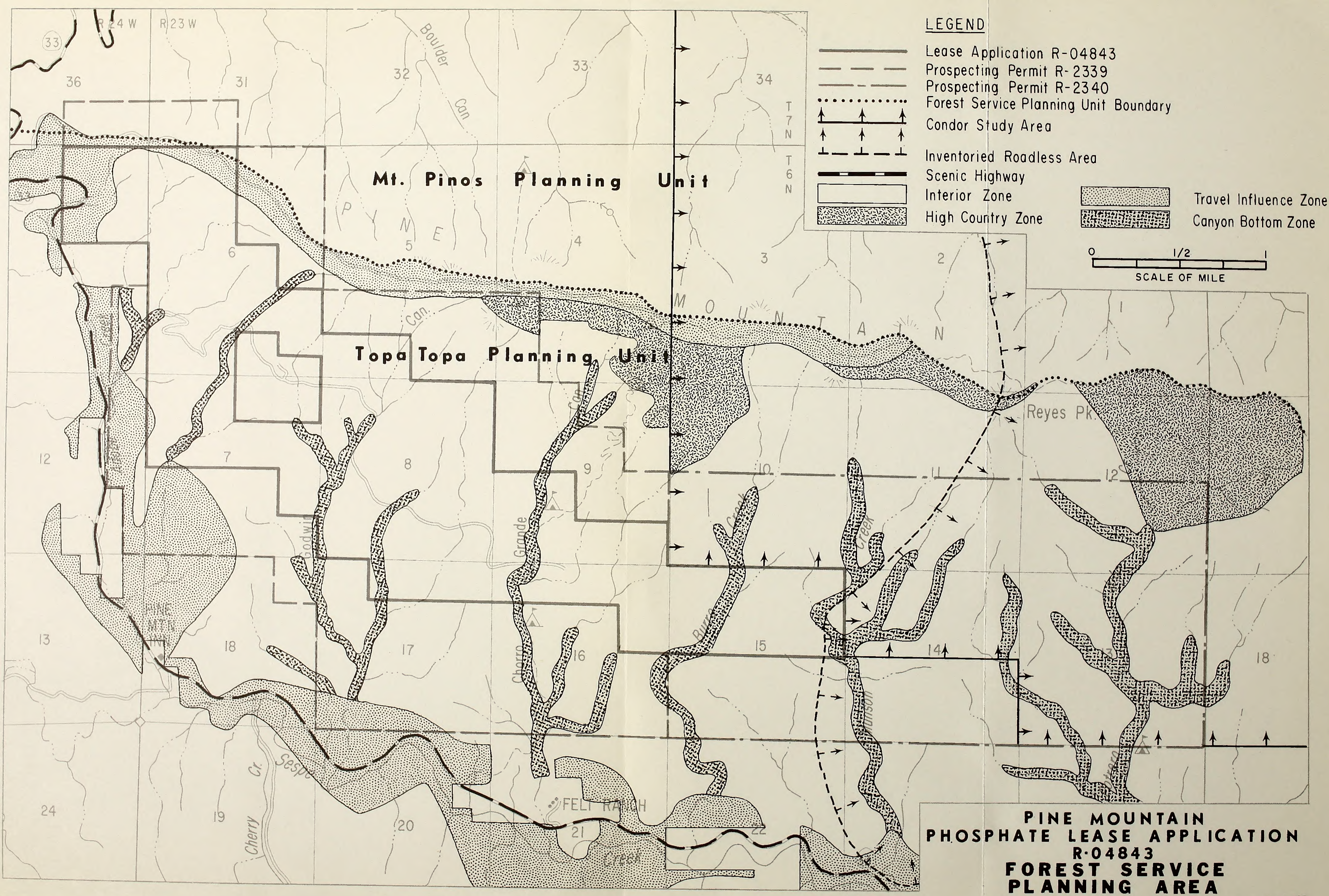
Current zoning of private lands in the Pine Mountain area is Rural-Agricultural (RA), with the exception of the parcel on which the Pine Mountain Inn is located, and that is zoned Commercial (CD). Minimum lot sizes vary, but the average appears to be 10 to 20 acres. National Forest land is zoned Open Space, with a 20-acre minimum lot size (while this zoning has little legal effect, it corresponds with the Forest Service objectives expressed in the Multiple Use Plan and is an expression of the goals and objectives of the County).

(2) National Forest

a. Multiple Use Plan

The proposed lease area falls within four multiple-use zones as defined in the Forest Service multiple-use plan: the High Country Zone, the Interior Zone, the Canyon Bottom Zone, and the Travel Influence Zone (Map 18).

The management direction for these zones includes the following considerations.



PINE MOUNTAIN PHOSPHATE LEASE APPLICATION R-04843 FOREST SERVICE PLANNING AREA

MAP 18

(i) High Country Zone

Improve, maintain or restore optimum conditions for mountain-type recreation. Maintain mountain scenery and beauty. Secure optimum yields of the highest quality of water practicable. Maintain a favorable wildlife habitat. Encourage reestablishment of plant cover on denuded areas.

(ii) Interior Zone

Emphasize production of useable water and the regulation of floods. Intensify management to meet increasing pressures for public use, water and flood prevention. Take steps to realize the full potential of the natural resources of this vast area. At the same time protect the valuable watershed cover and soil from damage by fire, erosion and other destructive agents.

(iii) Canyon Bottom Zone

Facilitate the production, control and storage, and transmission of water. Protect the zone's attractive environment, and improve wildlife habitat.

(iv) Travel Influence Zone

Maintain or enhance attractive conditions of the landscape closely visible to the traveler and visitor. Provide facilities needed by the traveling public. Provide desirable recreational opportunities. Reduce the occurrence of fires originating in this zone. Provide interpretive facilities for informing the public of Forest Service management practices in this and adjacent zones.

b. Study Areas

(i) Inventoried Roadless Areas

As part of the Forest Service's long-range land management planning, an inventory and review has been made of all roadless areas of over 5,000 acres in the National Forest System. Extensive public involvement has been part of this review.

An environmental impact statement covering the proposed selection of these areas for study has been filed with the President's Council on Environmental Quality. The Chief of the Forest Service has stated that no development or modification of any kind will be undertaken in these areas without first completing and filing an environmental statement in accordance with procedures required by the National Environmental Policy Act of 1969 - which includes full public involvement and opportunity for additional comment.

Two Inventoried Roadless Areas are adjacent to the proposed lease area. One of these, the Pine Mountain #5 consists of 64,000 acres of which 63,840 acres are national forest lands and 160 acres are in private ownership. A portion of this study area involves the eastern portion of the lease area in the NE-1/4 of Section 15, T. 6N., R. 23W., in the vicinity of Munson Creek, and a considerable portion of Prospecting Permit R-2340.

The other study area is the Matilija #3, consisting of 23,000 acres of which 22,320 acres are national forest lands and 680 acres are in private ownership. This study area lies southwest and outside of the proposed lease site.

(ii) Long-Range Planning Units

The Los Padres National Forest is initiating long-range management plans for all the resources involved within the National Forest System lands. When completed, these long-range management plans will replace the current multiple-use plans.

These plans will aid the Forest Supervisor and District Ranger in determining which uses or activities should be permitted on National Forest System lands and where they should occur. The plan will set general management direction for the next 10- to 20-year period. It is a continuation of the planning process now underway elsewhere on the Forest.

It is not possible to satisfy all the individual demands or requests the forest receives from various segments of the public. Often these demands are in direct conflict with each other or with appropriate land use. Action taken on these requests must consider the equally important, but unspoken, demands of the flora and fauna. The decision to permit or not to permit a given activity cannot be made on the value of that activity alone, but must be made with consideration of other activities that might be affected by the decision, not only today but in the future. To insure that decisions made today will provide for future generations, long-range planning is necessary to insure that future options are available.

Some of the information needed to complete these plans will include: Botanical - Archaeological - Soils - Visual Analysis - Geological - Mineral - Water - Social Values - Electronic Sites - Wildlife - Grazing - Fisheries - Fire - Economics - Air - Astronomical Observatory Sites - Existing Land Use - Transportation (roads, bikeways, trails) - Historical - Interpretive Opportunities - Population - Recreation.

There are two long-range planning units within the area of the proposed lease site; the Mt. Pinos Planning Unit lies to the north and involves a very small portion of this site. The majority of the proposed lease site is within the Topa Topa Planning Unit.

(iii) Condor Study Area

Areas within the Los Padres National Forest have been identified which are considered important in relation to the overall habitat of the California condor. Any land use activity within these areas may have an adverse effect on the survival of this threatened species.

A portion of one of these study areas lies to the east of the proposed lease site and includes a major portion of Prospecting Permit R-2340.

17. Transportation

The primary access into the Pine Mountain area is State Route 33, a two-lane, 22-foot roadway-width highway, connecting Ojai and the Ventura area with the San Joaquin Valley. The road crosses extremely rough topography and does not meet current minimum standards for its present operating speeds, based on lane width and sight distance relative to roadway curvature.

The highway's current traffic load is greatly below capacity. The maximum capacity is between 3000-6000 vehicles per day, depending upon traffic distribution.

FIGURE 23: Current Traffic Counts

Location	Average Daily Traffic	Peak-Hour Traffic
Forest Boundary (M.P. 13.35)	1600	440
Wheeler Springs	410	100
Ozena Road Junction (M.P. 48.50)	350	85

The first location, at the National Forest boundary, is just north of Ojai. Much of this traffic is diverted to Matilija Reservoir, approximately one mile inside the National Forest boundary. There is also a significant amount of residential development on private lands along this portion of Route 33.

At Wheeler Springs, about 4 miles inside the boundary, traffic has dropped off so that only one-quarter as much is counted. At the Ozena Road junction, traffic counts indicate that average daily traffic is 350 vehicles. All of these counts are based on the total number of vehicles passing a given point.

The composition of vehicle traffic within the National Forest was estimated in 1971 by the California Division of Highways (now CALTRANS). There are no more recent estimates. Traffic at that time was broken out as follows:

FIGURE 24

Vehicle	Average Daily Traffic
2-axle trucks	24
3-axle trucks	6
4-axle, or more, trucks	10
All vehicles (incl. trucks)	400

From these counts and estimates it can be seen that truck traffic was approximately 10 percent of total traffic and that average daily traffic had not changed significantly in the period from 1971-1973.

There are 34 bridges and 3 tunnels between Ojai and Maricopa. Thirteen of the bridges are entirely or partially of timber construction. Under current traffic conditions, these bridges could be expected to remain serviceable for 10 to 20 years.

An access road has been constructed from Highway 33 in the NE-1/4 Section 12, T. 6N., R. 24W., and progresses southeasterly to a point just east of Chorro Grande Canyon and Oak Campground, which is within the area of the lease application.

Forest Service Road 6N06 (Hattie Russell Road) proceeds easterly from the junction of Highway 33 along the crest of Pine Mountain to a point approximately one-half mile west of Reyes Peak, at which point a hiking trail (23W04) proceeds easterly to Haddock campsite.

An access road, under a Forest Service special use permit, begins in the NE-1/4 of Section 13, T. 6N., R. 24W., and proceeds northeasterly from Highway 33, past the Sandstone Campground and then northerly to the NW-1/4 Section 7, T. 6N., R. 23W., within the proposed lease site.

B. Probable Future Environment Without the Proposal

1. Human Populations

The 1974 population of the north half is estimated at 383. The factors leading to the present, relatively low population include: the heavy preponderance of public land and the general shortage of developable private land; the physiography and climate, which are much more extreme than in the southern half of the county; the geographical location, which is not in as close proximity to the expanding Los Angeles Basin as is the south half; and a general absence of public services and facilities.

None of these factors is subject to sudden, dramatic change. In Ventura County's Phase II Study, it was stated that the Southern California Association of Governments' projections indicated a 1980 population of 1400 in the north half. Conversations with the Ventura County Planning Department indicate that this projection is now considered too high; they currently estimate that the 1990 population will be considerably less than 1000 in this portion of the county.

2. Land Use

While there has been little actual development in this part of the country, several development plans have been advanced in recent years. Several commercial recreational type developments have been proposed and a proposal was advanced for a subdivision in the Lockwood Valley that could accommodate up to 20,000 people. While the status of these proposals remains uncertain, the Phase II Study lists two external influences that could act as catalysts in accelerating development activity.

The first influence is the appearance of recreational subdivisions, to the north, in Kern County; in particular, the Big Pine Mountain Club development. The second is the possible stimulation of recreational development proposals in the northeastern part of the county by the proximity of Pyramid and Hardluck Dam reservoirs.

Therefore, while past development has been limited by the factors discussed above under Human Populations, there are some ambiguous indications that an acceleration in development might occur in the future.

Rural subdivisions have created many problems in California. Development rates, statewide, have ranged from zero to one percent per year. Then, once the land is subdivided, little can be done to divert the land to alternative uses. The low density developments impose additional demands on community services that are disproportionate to the increased revenues derived.

In response to the history of land use problems in subdivisions, in 1971 the Legislature passed the Subdivision Map Act (Sections 11, 500 - 11658, Business and Professions Code). It provides, among other things, that proposed subdivisions must be consistent with general and specific plans of the county. Exceptions to the provisions of this law apply when the land, after subdivision, is 20 acres or more per parcel and approved access is provided; when the parcel size after subdivision is 40 acres without approved access; or when the parcel to be subdivided is less that 5 acres.

Companion legislation, passed in 1971, provides authority for counties to request tentative evaluation of environmental impacts. Other legislation provides, in part, that counties cannot approve subdivision maps when the land project would result in unacceptable environmental impacts.

Most of the development proposals to date have been in the Lockwood and Hungry Valleys, and most of the developable private land lies in these northern and northeastern portions of the north half of the county. The area in the vicinity of Pine Mountain is not expected to show any dramatic changes in land use in the foreseeable future and major development is not expected in this area. All current indicators point to maintenance of the present open space in this area, with possibly some low density residential development.

3. Wildlife and Fish

If the mine/plant proposal does not materialize, little change in the overall fish and wildlife situation is likely within the foreseeable future. There will be some increase in public use in the vicinity as a natural result of projected population increases in Ventura, Santa Barbara, and other nearby counties, but this will be of a transitory and recreation-oriented type. Detrimental effects on fish and wildlife should be limited to minor increases in motor vehicle-animal collisions, a light increase in the probability of fish kills from accidental pollution, and possibly a minor movement of some wildlife out of the most heavily travelled areas.

Industrial and residential growth potential is limited by the small acreage of private land locally. The Ventura County General Plan recommends a very low level of development in the region, and the U. S. Forest Service has no plans for significant changes in National Forest land use locally. Air pollution projects for Ventura County predict generally lower levels than currently, but still exceeding adverse levels (Tubbs, 1973), so no appreciable changes in vegetation or animal health are anticipated. These factors combined suggest little change in the fish and wildlife situation in the future.

Changes in vegetation will occur, depending on the magnitude and frequency of fires in the area. This, in turn, will result in upward and downward trends in various wildlife populations. Increased public use may result in an increase in fire, which could benefit early and mid-successional species such as California quail and mule deer.

4. California condor

Plans for condor protection and management anticipate some increase in population size and some increased use of currently marginal habitats. The lease area itself it not suitable habitat, but nearby nest and roost sites may become more useable. However, increase in southern California human populations will probably result in a sufficient increase in local public use to keep condors from expanding into currently unused habitat. The magnitude of local condor use may increase slightly in the future, but the extent of the area will not.

5. Transportation

Vehicle traffic is not expected to increase greatly on Route 33 in the foreseeable future, at least not to the point where capacity is exceeded and upgrading would become necessary.

CALTRANS priorities are set in their 20-Year Program Guide. The current guide, which covers construction through January 1, 1994, does not include any provisions for upgrading Route 33.

The thirteen bridge structures will be replaced during the period 1980-1990. Present roadway maintenance cost estimates range from $3,700 to $4,500 per mile annually.

4. California condor

Since the [illegible] and subsequent [illegible] changes in population size and [illegible] habitats. [illegible]. However, [illegible] data. [illegible] of the [illegible].

5. [illegible]

[illegible]

[illegible]

[illegible] will be evaluated during the [illegible].

III. ENVIRONMENTAL IMPACT OF THE PROPOSED ACTION

This section discusses those potential impacts of mineral development of the proposed lease area that would occur in the absence of mitigation. As such, it represents the "worst case" condition.

A. Physical Elements of the Environment

1. Air Quality

Gaseous pollutants will be emitted by the 8 pieces of diesel machinery employed in the mining operation, by the vehicles used in raw material and product transport, by vehicles used in transporting personnel to and from the site, and from the production process.

Based on EPA standards for emissions from diesel powered vehicles (Figure 6), total emissions were estimated. Since these are based on the Federal Standards, they represent an upper limit of vehicular emissions. The following quantities will be emitted on an annual basis.

Pollutant	Annual Emissions (tons)
SO_x	15
CO_x	126
NO_x	207
Particulates	7
Other	24
Total	379

These data do not represent total vehicle emissions in the lease area. They are based solely on fuel consumption, and emissions will occur along the routes of vehicle traffic. Concentrations of emissions will be highest at the mine quarries, truck marshalling yard and unloading points. It is doubtful that State or Federal ambient air quality standards (Figure 8) will be exceeded in operation of mining equipment and vehicles. The overall increase in gaseous pollutants within the Ventura County portion of the South Coast Air Basin will be minor.

Operation of diesel powered generators could also result in increased gaseous emissions. Diesel generation will be employed only if purchased power cannot be brought to the site, and no design standards for this equipment have been established. A standby generator may be employed at the site. The standby generator will cause increases in gaseous emissions, when it is employed. Because of the intermittent nature of operation, the lack of design information, and the uncertain probability of use, these emissions cannot be predicted. Off-site power generation could result in increased emissions and pollution, but these cannot be quantified.

Applying fluoride emission factors published by EPA in the August 6, 1975, Federal Register indicates that the maximum allowable fluoride emissions may be as much as 1000 pounds/year (3 pounds per day). Fluorides are released when the fluoride-containing material is chemically treated (acidulated).

Fluoride symptoms on conifer needles usually consist of tip necrosis with the injury progressing to the needle base in severe cases. The injured tissue is at first yellow, then tan, and finally turns reddish-brown. Needles apparently are most sensitive in the spring and become progressively less sensitive during the summer.

In broadleafed species, fluorides are taken into the leaf and are transported to the leaf tip and margins. As the concentration of fluoride in these tissues builds up to toxic levels, cells and tissue begin to be injured. The leaf tips and margins fade in color and as injury progresses, the tissue dies.

The impact of cumulative fumigations will be to change community compositions, creating environmental conditions less favorable to the survival of those species (particularly conifers) that are most susceptible to fluoride damage. This, in turn, results in changes in community composition, by changing the relative ability of the species to compete.

If fumigation occurs over an extended period of time, in this case for more than 50 years, reductions in vegetation density can be anticipated.

The mining operation (ripping, blasting, ore transport) will result in increased particulate emissions. At an average vehicle speed of 10 mph, dust emissions on the unpaved service and mine haulage roads may average 0.52 lbs./vehicle-mile. We are unable to estimate emissions from blasting, ripping, or ore loading. They would be additional to dust produced in ore transport.

SO_2 and TSP will increase in the project area due to the emissions of the phosphate plant. The extent of the increase will depend upon the

BACT used in the plant, as well as the quantifiable limitations set by the December 5, 1974, Federal Register for the adjacent Class II areas. The minimum anticipated increase in TSP and SO_2 in the lease area would be 10 to 15 micrograms per cubic meter, respectively, per annual geometric mean.

2. Water

a. Water Quality

One of the primary questions raised by the proposed lease is the effect upon streamflow in Chorro Grande Creek and further downstream in Sespe Creek. Another concern is the potential effect of pumping on groundwater resources.

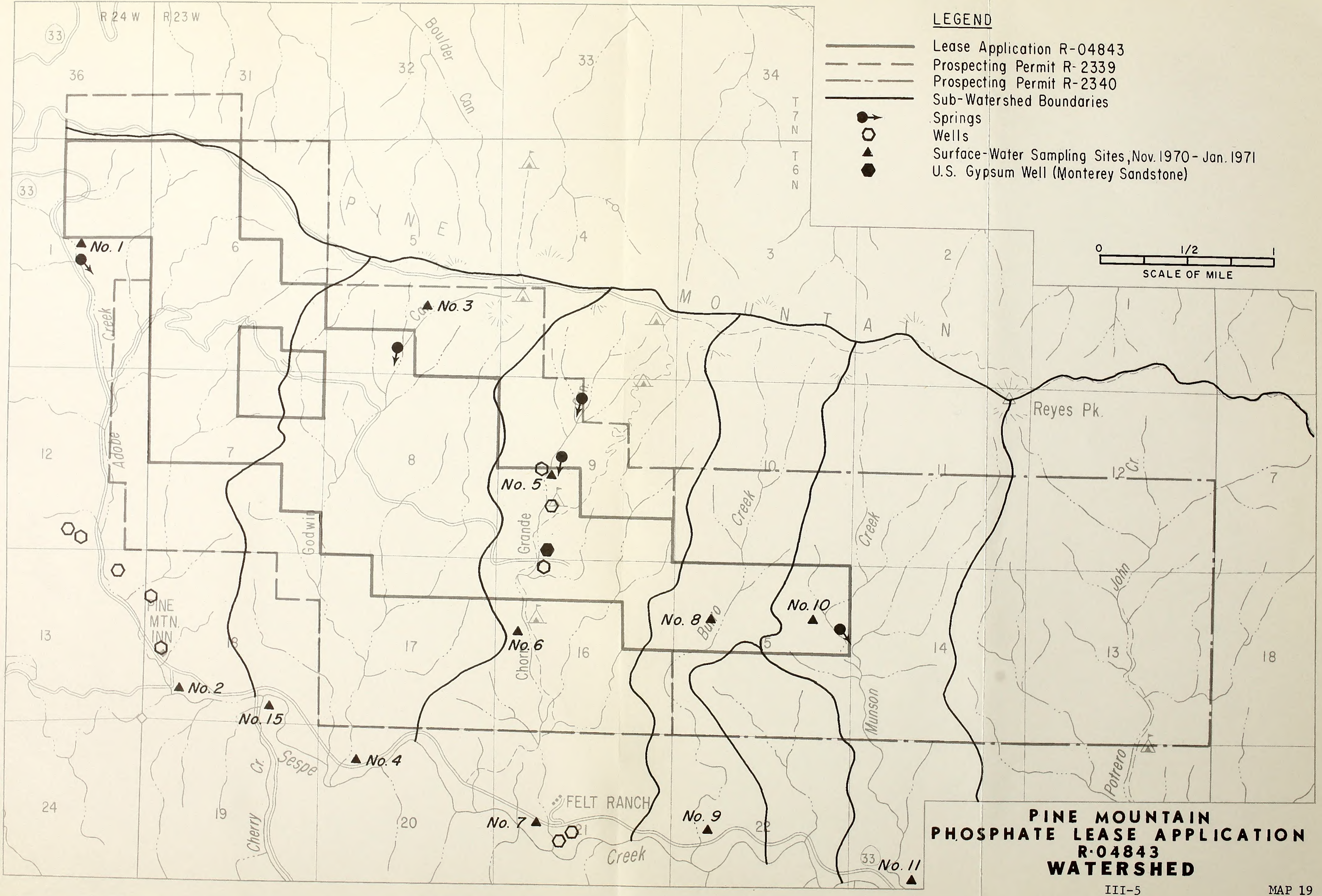
Gaging station records on Sespe Creek, at Wheeler Springs, indicate that median flow is 1.1 cfs, and that streamflow below 2 cfs occurs 70 percent of the time - in most years for at least 183 consecutive days during the dry season (which generally runs from May through October). There is no flow in Sespe Creek about 7 percent of the time.

All of the Sespe Creek tributaries in the lease area are ephemeral. During low flow periods, water in these tributaries surfaces only as headwater seeps; little surface flow reaches Sespe Creek.

As discussed earlier, the proposal involves use of 720,000 gallons per day of water, of which 348,480 gallons will be consumed in the recovery process (comprising 48 percent of total water use).

Water for the proposed processing application will be drawn from the Godwin Syncline, an apparently restricted aquifer system in the upper Monterey and Santa Margarita Formations.

The ore body is on the south limb of the Godwin syncline, which extends for several miles along the south side of the Pine Mountain fault (Map 5). The water in storage in this aquifer is estimated by the applicant to be 120,000 acre-feet.



PINE MOUNTAIN
PHOSPHATE LEASE APPLICATION
R-04843
WATERSHED

MAP 19

A test well was drilled into the Monterey sand (Godwin Syncline) to a depth of 992 feet. The well was reamed and cased to 940 feet, and gravel packed. This well, located on the lease area near Chorro Grande Creek, was pumped 72 hours and produced a reported 1000 gallons per minute (gpm). The static water level is about 60 to 70 feet below ground surface.

Static water level (head) (determined from the test well) appears to be such that, under normal conditions, water from the sandstone aquifer (Monterey Formation) discharges in the subsurface to the alluvial deposits of sand, gravel and silt along Chorro Grande Creek, providing some of the base flow and some of the underflow that furnishes water to vegetation along the creek. Discharge from the Monterey sand is estimated to be 20 to 40 gpm. Big Chorro Spring, which discharges to Chorro Grande Creek about a mile upstream from Oak Camp, typically flows from about 70 to 100 gpm during the summer months and probably supplies most of the base flow. Base flow in the creek at Oak Camp, near the proposed plant site, was estimated to be about 20-40 gpm (about 0.1 CFS) on August 14, 1974. This may be a typical late summer rate of flow at this site. The creek was dry about one-half mile below the site. No data are available as to the amount of underflow or subsurface flow in the alluvium. Most of the surface flow and subsurface flow during summer appears to originate upstream from the outcrop of the aquifier, at Big Chorro Spring. Because the Monterey sand is of low permeability, potential losses of the upstream flow to the sand during pumping will be low and thus the effect on downstream flows may be minimal.

Surface and subsurface flow in the tributaries to Sespe Creek is also supplemented by water from aquifers underlying the Monterey sand, which outcrop between the Monterey Formation (plant site) and Sespe Creek. A deep well in the Sespe Formation (Rains #1) east of Highway 33 is a flowing well (Map 19).

Water stored in the Godwin Syncline may be separate and distinct from water resources in underlying water-bearing formations. If so, pumping would have no effect on water supplies in the underlying Sespe formation sandstones. Pumping from the Monterey sands in the vicinity of the lease would probably have little effect upon the flow in Sespe Creek, however, this conclusion is based on limited available data and careful monitoring would be needed to evaluate such possible effects.

Annual water usage is projected at about 800 acre feet per year, or about 0.6 percent of the estimated water in storage in the Monterey sand. In the absence of recharge, 64 percent of the total supply would be consumed in 50 years. Recharge from the 22.7 inch annual precipitation in the basin may not be equal to usage. Lack of data on permeability and storage coefficients precludes computations of recharge and drawdown. The test well will be used as a supply well if the proposal becomes operative. Low permeability and/or low recharge may necessitate drilling additional wells to fully utilize the available supply. Additional wells - if drilled in the Monterey Formation - would not change the impact previously discussed.

b. Water Quality

A water quality reconnaissance of the tributaries of Sespe Creek was conducted on November 23-24, 1970, and January 20, 1971, by the Geological Survey. Data were gathered to assist in deciding which sampling points should be established as permanent, continuous monitoring points, and to indicate which of the various water-quality parameters would be most useful in evaluating the influence of mining and processing on the affected streams. Samples obtained in November reflect low water (dry season) conditions both times, (sampling locations are indicated on Map 19). Sampling sites 1, 3, 5, 6, 8, and 10 were in the headwater area of tributaries where there was flow during November 23-24 1970. During the January sampling trip, these sites were inaccessible; therefore, the samples were collected near the mouth of each tributary. Approximate locations are listed on the water quality tabulation.

The results of the analyses show the local water is of a calcium bicarbonate sulfate type. All samples showed appreciable boron and detectable fluoride. The waters are more dilute in terms of calcium, sulfate and bicarbonate at the larger flows. At low flows the waters approach saturation with respect to gypsum and calcite. White crusts were collected at the water line in Potrero John Creek, just above the confluence with Sespe Creek at the low flow stage. The white crusts consist of calcite ($CaCO_3$), gypsum ($CaSO_4 \cdot 2H_2O$), detrital quartz (SiO_2), and feldspar. Addition of more calcium or sulfate or both to the water will increase the precipitation of gypsum; unless the pH of carbonate decreases there will also be an increase in the precipitation of calcite if calcium concentrations increase.

X-ray diffraction analyses were performed on whole-rock samples of streambed material, as well as on the clay-size (2-0.5 micron) separates, both untreated and glycolated.

Quartz is most abundant followed by a potash feldspar and intermediate plagioclase feldspar followed by a small amount of calcite ($CaCO_3$). No indication of gypsum or anhydrite is found.

The clay minerals are also relatively constant in kind and amount. A kaolinite with fair crystallinity is most abundant followed by illite (fine-grained muscovite) and montmorillonite. The montmorillonite is all in the Ca-Mg saturated state, a state characterized by large clay floccules, good soil tilth, and good permeability. Conversion of this montmorillonite to the Na-K form by ion-exchange in water of a different composition could alter all of these characteristics, perhaps to the detriment of the system. The moderate amount of montmorillonite present in these bed material samples indicates the probable abundance of montmorillonite in the suspended load. Minor amounts of vermiculite or mixed-layer montmorillonite minerals may be present in a few samples. In the Adobe Creek and Godwin Creek samples, montmorillonite is more abundant than either kaolinite or illite.

An analysis of a well water sample from the Monterey Formation, conducted for U.S. Gypsum Company in 1969, indicated that the

FIGURE 25

WATER QUALITY ANALYSIS
(from Geological Survey)
SESPE CREEK NEAR FILLMORE, CALIF.
CHEMICAL ANALYSIS, WATER YEAR
OCTOBER 1970 TO SEPTEMBER 1971

DATE	TIME	DISCHARGE (CFS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)
Nov. 05	1445	14	19.0	11.0	131	30	89	3.0	196
Dec. 02	1400	242	----	----	88	22	37	---	160
21	1000	1170	----	----	45	8.0	12	---	96
Jan. 21	1400	318	13.0	11.1	81	22	29	2.0	176
Mar. 15	1045	67	----	----	106	27	56	---	218
Apr. 20	1330	43	13.0	10.2	108	30	64	2.0	184
July 13	1245	3.7	27.0	8.9	101	25	79	3.0	170

DATE	CARBONATE (CO3) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	DISSOLVED-BORON (B) (UG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED SOLIDS (TONS PER DAY)
Nov. 05	0	319	103	1.1	.5	1400	817	1.11	30.9
Dec. 02	0	223	23	.7	---	550	537	.73	351
21	0	80	11	.4	9.0	320	303	.41	958
Jan. 21	0	185	10	.6	.6	240	411	.56	353
Mar. 15	0	269	29	.9	.0	650	600	.82	109
Apr. 20	12	294	35	1.0	.1	880	663	.90	77.0
July 13	0	285	60	1.0	.8	1550	635	.86	6.34

FIGURE 26
SURFACE WATER QUALITY DATA
(From Geological Survey)

Location Number	Stream	Flow (CFS)	Date of Collection	Water Temperature(°C)	Silica(SiO_2)	Calcium	Magnesium	Sodium(Na)	Potassium(k)	Bicarbonate	Carbonate	Sulfate	Chloride	Fluoride	Nitrate	Boron	Phosphate(PO_4)	Suspended Sediment
1	Adobe Creek; spring on Walters Place (NE-1/4Sec 1, T6N, R24W)	0.003	Nov. 23, 70	10	21	230	65	57	1.8	368	1.6	550	13	0.6	0.1	3.2	0.1	.4
2	Adobe Creek; near confluence with Sespe (NE-1/4Sec 13, T6N, R24W)	2.9	Jan. 20, 71	10	20	170	37	85	3.0	306	1.8	480	12	.6	.2	3.2	.10	424
3	Godwin Creek; spring upstream from property access road (Mid-1/4Sec 5, T6N, R 23W)	0.013	Nov. 24, 70	11	22	150	76	41	3.2	337	2.4	500	5.5	.0	.2	---	---	8
4	Godwin Creek; at highway 33 crossing (NW-1/4Sec 20, T6N, R23W)	2.5	Jan. 20, 71	14	16	130	28	58	2.1	237	3.2	290	13	.7	.0	4.1	.10	83
5	Chorro Grande Creek; upstream from property access road (Mid-1/4Sec9, T6N, R23W)	0.18	Nov. 23, 70	13	19	140	49	26	2.2	259	3.5	370	3.1	.3	---	1.1	.1	7
6	Chorro Grande Creek; at Oak Camp (NW-1/4Sec 16, T6N, R23W)	0.11	Nov. 24, 70	7	23	180	72	40	2.3	322	3.0	490	4.0	.4	.1	1.5	---	3
7	Chorro Grande Creek; at highway 33 (SW-1/4Sec 21, T6N, R23W)	2.6	Jan. 20, 73	14	18	140	46	37	1.8	262	3.8	320	6.0	.6	.1	1.8	.15	8

Location Number	Stream	Flow (cfs)	Date of Collection	Water temperature (°C)	Silica(SiO_2)	Calcium(Ca)	Magnesium(Ng)	Sodium(Na)	Potassium(K)	Bicarbonate(NCO_3)	Carbonate(CO_3)	Sulfate(SO_4)	Chloride(Cl)	Fluoride(F)	Nitrate(NO_3)	Boron(B)	Phosphate(PO_4)	Suspended Sediment
8.	Burro Creek; spring near access road (NW-1/4Sec 15, T6N, R23W)	0.003	Nov. 23, 70	12	25	390	120	95	3.1	556	1.6	1100	18.	0.6	0.0	3.8	0.05	36
9.	Burro Creek; at highway 33 crossing (SW-1/4, Sec 22, T6N, R23W)	1.2	Jan. 20, 71	13	19	170	56	54	2.0	306	4.3	460	8.0	.9	.2	2.8	.10	9
10.	Munson Creek; spring near access road (NE-1/4Sec 15, T6N, R23W)	0.10	Nov. 23, 70	15	20	180	47	28	2.4	270	.17	400	3.5	.4	.1	1.1	.2	2
11.	Munson Creek; at highway 33 crossing (SW-1/4Sec 23, T6N, R23W)	1.3	Jan. 20, 73	12	18	140	36	46	1.8	275	2.1	280	14.	.5	.1	1.8	.05	8
12.	Potrero John Creek; at highway 33	0.24	Nov. 24, 70	7	21	250	89	22	2.9	281	1.0	760	12.	.6	.1	---	---	1
13.	(NE-1/4Sec 25, T6N R23W	3.0	Jan. 20, 71	11	16	200	64	30	2.4	189	1.8	520	5.5	.7	---	1.1	.10	5
14.	Derrydale Creek; at highway 33 crossing (NE-1/4Sec 25, T6N, R23W)	1.9	Jan. 20, 71	9	17	170	62	46	2.3	278	3.4	470	9.0	.2	.2	2.0	.10	---
15.	Sespe Creek; at Cherry Canyon (SE-1/4Sec 18, T6N, R23W)	36.	Jan. 20, 71	13	15	98	26	41	2.3	217	1.9	240	7.0	.5	0.3	2.1	.20	157
16.	Sespe Creek; at Wheeler Springs gage (USG3) (SE-1/4Sec 30, T6N, R23W)	1.1	Nov. 24, 70	10	19	190	65	48	2.5	276	2.2	540	19.	.6	.1	2.2	.05	1

following material was present:

Material	Concentration (parts per million)
Calcium	105
Magnesium	43
Sodium	118
Bicarbonate	354
Chloride	21
Sulfate	387
Total Dissolved Solids (TDS)	1033
Boron	0.23
Fluoride	0.25
Iron	0.28
Manganese	0.08
pH	7.6

This sample tends to verify that the Monterey Formation waters are higher in dissolved solids than the surface waters on the lease site, at least during the dry season.

The most important potential sources of water degradation on the lease area include: leachate from the tailings, spills of sulfuric acid, phosphoric acid, hydrochloric acid, and waste generated in normal plant operation.

Soluble material in the tailings can be leached and transported into the hydrologic system by surface flow. It can be transported into the groundwater through percolation of rainfall and by recovery of the water table into filled pits, where the ore body was dewatered prior to mining.

The tailings will contain leachable phosphate, sulphate, and other constituents. Excess water contained in the tailings available to percolate into the soil and groundwater is estimated to be about 10-20 acre feet per year. This water will be at a low pH (about pH 3 to pH 4) and will contain several thousand milligrams per liter of dissolved constituents. Rainfall percolating through the tailings will produce an estimated additional 90 acre feet of leachate per year per 100 acres of tailings. The initial tailing pit (first 5 years) is 120 acres. Thereafter tailings will be disposed of in the mined out pits which are expected to be a total of about 200 acres (pg I-3). The total surface area of tailings will be a little less than 320 acres, which is equal to about one third of the surface recharge area of the Monterey formation at the Pine Mountain tract, during the proposed life of the project. Leachate produced from rainfall percolating through the tailings will contain an estimated 2000-2500 mg/l of dissolved minerals of which about 0.7 will be sulphate. Low flows in the creeks draining the Pine Mountain tract (fig. 26, section III) contained sulphates that ranged from 240 to 1100 mg/l. The ground water in the Monterey formation contained 387 mg/l sulphate (pg III-8). Most of this sulphate in the water comes from the solution of minerals in the gypsum-bearing beds in the area. This is a natural process and will continue as long as soluble material is present. The effect of mining will be to increase somewhat the availability of soluble sulphate and may cause an increase in sulphate in the low flows - which come mostly from ground water seepage - of the tributaries to Sespe Creek basin during medium and high flows. Data are not available with which to predict the extent of changes in ground water quality. The pH of the leachate as it moves away from the source in groundwater will increase gradually to that of the surrounding rocks which normally are in the range from pH 7 to pH 8 (pg II-19).

It is possible that large scale sulfuric acid spills could occur, resulting from a large-magnitude earthquake. A ten-day supply, or 501,750 gallons (approximately 1.5 acre-feet), of concentrated sulfuric acid will be stored on-site, in a tank surrounded by earthen dikes. The tank will be designed to withstand earthquakes of magnitude 6 on the Richter scale. The proposed plant site lies downslope from the Pine Mountain fault, which is considered a possible extension of the historically and recently active Big Pine Fault.

Seismic shaking may cause damage to the plant directly or indirectly, through landslides triggered by the shaking. Recurrence intervals for the Ventura-Winnemucca zone indicate that earthquakes of magnitude 6.0 or greater have a probability of occurrence in any given year of 0.012 per 1000 km^2. Similar frequency rates developed specifically for the southern California region, indicate that the average probability for magnitude 6.0 earthquakes is about 0.003 per year per 1000 km^2. The data do not allow projection of frequency rates for the specific area of the proposed lease. Maps, prepared in 1972 by the Division of Geology and Planetary Science, California Institute of Technology, indicate that no major earthquakes (magnitude 4.0+) occurred along the Big Pine or Pine Mountain faults from 1934 through 1969.

In order for a discharge of sulfuric acid to occur, there would have to be an earthquake of a magnitude of 6.0 or greater near the plantsite, the tank would have to be ruptured, and the surrounding dikes breached by rupture or by seiche-like action of the spilled acid. While the probability of an event of this magnitude occurring during the 50-year life of the proposal cannot be determined, it must be considered a possibility. If the tank were ruptured and the dikes failed, some of the acid would flow into Chorro Grande Creek and some would seep into the alluvium between the plant and the creek.

If large quantities of sulfuric acid spilled into Chorro Grande Creek because of broken dikes or seiche action there would be considerable impacts on downstreams biota, including destruction of riparian habitat and possible increase in water temperature, as well as direct mortality of aquatic organisms.

The alluvium at the storage site and along Chorro Grande Creek is highly calcareous. In a test, about 4 ml of concentrated H_2SO_4 reacted to neutrality with about 100 grams of this soil. The acid seeped into it would, therefore, tend to be neutralized. The effects of escaping phosphoric or hydrochloric acid would be similar to those described above.

Effluent from the sewage treatment plant will be used for irrigation of reclaimed areas. Discharges to Chorro Grande Creek will be subject to the permit requirements of the California Water Quality Control Board. Should rupture of the holding pond occur, due to earthquakes, up to 6.5 acre-feet (approximately 2,174,000 gallons) of treated effluent would be discharged into Chorro Grande Creek and eventually into Sespe Creek. The effluent would have a biological oxygen demand of 18 milligrams per liter. The dissolved oxygen content of Sespe Creek water, based on the 1970-1971 Geological Survey analysis, ranged from 8.9 (low-flow) to approximately 11 mg/liter (high-flow). If a discharge occurred during a low-flow period, a temporary reduction in oxygen could occur in Sespe Creek. A slight increase in suspended sediment load of the effluent waters lies within the range of suspended sediment in the area's streams.

3. Soils

A total of 75 acres will be occupied by plant facilities over the 50-year life of the proposed operation (Areas "A", "B", "C", "D", "E", "J" and the mined service and ore haulage roads; Map 1). Another 142 acres will be occupied by the tailings disposal area in the Godwin Creek drainage, and the spoil piles in the Chorro Grande drainage. Soils in these latter areas will be exposed for an estimated 13-18 years. Additionally, mine quarries will remove the soils on 276 acres, 40-50 acres in each quarry. The quarries will be filled with spoil and tailings at the rate of 5 acres per year after the first 8 years. Therefore, the quarries will remain exposed for a minimum of 8 years.

The probable extent of erosion and sedimentation attributable to mining activities during a 50-year storm was observed during 1969. The mine test pit was open during the 1969 storm period, when 46.44 inches (21.71 inches more than normal) fell on Pine Mountain ridge, 9000 feet north of the plant site. About 90% of the precipitation occurred during two months, January and February. Erosion in the test pit and tailings pile was negligible and no damage to Chorro Grande Creek from siltation was observed.

Because of the naturally large erosion potential of the Sespe Creek basin, the effect of the mining on sedimentation in the basin as a whole is negligible. The mine operation, as planned, should have a minor impact on sedimentation of the upper Sespe Creek basin.

There is a probability of increased erosion from mine-pit cuts and mining roads; however, the major causes of increased sediment yield attributable to the mining operation would be from the construction of the main access road and of the dike for the initial tailings area (Area "F", Map 1).

The mining plan indicates the ore will be taken from several open pits, each located between tributaries traversed by the ore zone. These pits will be excavated to an average depth of 200 feet with a maximum depth of 400 feet, with side walls at a slope of about 1:1. Any slumping or erosion in the pits will be contained by the pits. In the event of a major earthquake the excavations may add the necessary impetus to trigger a slide that would overrun the pit. On the other hand, the slump and slide areas on the south flank of Pine Mountain occurred naturally and the probability is high that major slides will occur again, whether the pits exist or not.

Mining pits may also increase the danger of slides if excavations are made in the toe of an existing slide area (see map 5). A third probable effect of the pits on erosion is slumping of the material that forms the buffer zone between the pit-end and the tributary stream. The purpose of this buffer zone (i.e., the distance between pits) is to retain the integrity of the natural drainage pattern. The planned distance between pits and a pit-wall slope of 1:1 should minimize the probability of slump damage, except for the probability of a catastrophic event. The probability of an earthquake of magnitude 6.0 on the Richter scale, in any year, ranges from 0.012 per 1000 km^2 to 0.003 per 1000 km^2. The Big Pine fault, a known active fault, lies about 4-1/2 miles north, and one of its branches, the Pine Mountain fault, crosses Chorro Grande Canyon about 2000 feet below the Pine Mountain ridgecrest. A tectonic surface rupture is improbable at distances greater than 600 feet from the active fault zone (Ventura County General Plan).

The initial tailings pit (120 acres), located in a tributary to Godwin Creek, will be large enough to store the tailings generated during the first 5-8 years of mining, after which the tailings will be stored in the mined-out pits. The dike holding the pit will be at standard construction with a clay foot to prevent leakage, followed with over-burden from the initial mining pit, to a height of about 100 feet. The dike face will be protected with rip-rap and revegetated on the downstream face. After revegetation is complete erosion should approach that of the adjacent terrain. Because the mine tailings are a damp sand, and not a slurry, a catastrophic breaching or slumping of the dike by tectonic action should not result in a spill of material injurious to Godwin Creek, if the probability is discounted of a 50-year flood occurring before the damaged dike could be repaired. Because no tectonic surface rupture is known near the pit site, a surface rupture of the dike, depending upon design and construction standards, is only a possibility; slumping or sliding because of seismic shaking is more likely.

B. Living Environmental Components

1. Vegetation

About 490 acres (21 percent) of the lease area will be subject to surface disturbance during the operating life of the proposal. The duration and manner of disturbance will vary but impacts will be basically attributable to the removal, stockpiling and mixing of soils and underlying parent material.

A listing of the major plant species that will be affected by the proposed mining operation and estimates of the percentage reduction within the lease area have been prepared by the Forest Service (Figure 27).

Figure 27

VEGETATION AFFECTED BY PROPOSED PINE MOUNTAIN PHOSPHATE MINING OPERATION

Common Name	Scientific Name	Sprouter	% Loss
California Buckwheat	*Eriogonum fasciculatum*	Yes	3
Canyon Live Oak	*Quercus chrysolepis*	Yes	1
Coffeeberry	*Rhamnus californica*	Yes	8
Chamise	*Adenostoma fasciculatum*	Yes	17
Elderberry (Blue)	*Sambucus caerulea velutine*	Yes	1
Flannelbush	*Frenontia californica*	Yes	1
Hoaryleaf Ceanothus	*Ceanothus crassifolius*	No	23
Manzanita Sp.	*Arctostaphylos sp.*	Both	16
Mountain Mahogany	*Cerocarpus betuloides*	Yes	3
Pinyon Pine	*Pinus monophylla*	No	1
Redberry	*Rhamnus crocea*	Yes	1.5
Scrub Oak	*Quercus dumosa*	Yes	12
Silktassel	*Garrya fremontii*	Yes	1.5
Whitehorn Ceanothus	*Ceanothus leucodermis*	Both	1
Willow Sp.	*Salix sp.*	Yes	7
Yerba Santa	*Eriodictyon californicum*	Yes	3

The removal of the climax chaparral will establish the conditions associated with primary succession. Soil loss through erosion of uncovered soil material, coupled with the generally adverse climatic conditions of the area, may reduce germination and inhibit the growth of newly established plants. As vegetation becomes established on these areas, sub-climax communities will develop. Progression to climax will occur over a period of thirty to fifty years, assuming no further disturbance.

Aspect is a critical determinant of the impact upon vegetation in this area. Species composition and density are directly related to aspect (Figure 13), as is the potential for reestablishment of plant species. A compilation of the acres of vegetation removed, by aspect, is given in the following table (Figure 28).

Figure 28

ACRES OF VEGETATION REMOVED, RELATION TO ASPECT[1]

Area[2]	North	East	South	West	Upland	Riparian	Total
Quarry P-1	13 ac	8 ac	15 ac	14 ac			40
Access Road	1 ac	16 ac	13 ac	11 ac			41
Tailings	54 ac	18 ac	31 ac	6 ac	Trace	11 ac	120
Spoil Area (South)	4 ac		5 ac	4 ac			13
Spoil Area (North)		1 ac	8 ac				9
A			6 ac				6
B	1 ac		2 ac		2 ac		5
C	2 ac		2 ac	1 ac	1.5 ac	1.5 ac	8
D	2 ac	2 ac	3 ac		2 ac		9
E					1 ac		1
Total	77 ac	45 ac	85 ac	26 ac	6.5 ac	12.5 ac	252
Percent	31%	18%	34%	10%	3%	4%	

[1] See Figure 14

[2] See Map 1

The Figure 28 table does not include the area disturbed by service roads, the vegetation removed for fire protection (fireproofing), or the areas occupied by the other quarries (approximately 200 acres), because the locations have not been precisely fixed. The percentage distribution should, however, remain relatively constant. Forty-four percent of the vegetation disturbance will occur on South and West aspects, those presenting the most adverse conditions for reestablishment of vegetation.

The cumulative effect of fluoride emissions will be a reduction of species density and variety in the vicinity of the project area. These impacts will be greatest on the northern (downwind) side of the proposed lease area. Fumigation will be most harmful during periods of stable air conditions, as during temperature inversions. The probability of temperature inversions occurring over the 50+ year life of the proposal is high.

No rare plant species are known to occur in the area of the proposed lease.

2. Wildlife and Fish

a. Mammals. Effects directly related to the proposal include: (1) actual displacement from some habitat, modified by the mine and processing plant development; (2) desertion of the project area by some species, least tolerant to man-related noise and activity (e.g. black bear, bobcat); and (3) possible changes in social behavior and reproductive success among mammals remaining within the noise and disturbance influence area (Environmental Protection Agency, 1971). Indirect effects include: (1) loss of individual animals as traffic deaths, resulting from increased vehicular travel, and as increased shooting kill due to improved area access; (2) possible changes in animal distribution due to unforeseen reductions in surface water flow, resulting from water use at the plant (based on presently available data, there should be no significant reduction in surface water); and (3) reduction in animal numbers due to the decrease in food supply (insects and plants) that may result from decreased surface water, or chemical or particulate pollution. Not all these impacts are certain, and the magnitude of each is likely to be small. All species involved are common throughout Southern California. Therefore, although carrying capacity for some species will be reduced, and actual numbers of most species will decrease (some rodents may actually increase in the disturbed habitat), the magnitude of the change is small, and the significance of the impact is expected to be minor. The deer range involved in the proposal is less than 1 percent of the total habitat (1,120 square miles) of the Mt. Pinos Deer Herd.

Most mammal species should reestablish themselves after the project is terminated. With reestablishment of vegetation on all or part of the mined area, populations of deer and rodents are likely to increase over levels occurring now on the old growth brushlands. Depending on public access and development in the area following termination of mining, some increase in animal loss to traffic deaths, legal and illegal shooting, and noise and disturbance may occur. Impact on individual species and on the total Southern California mammalian resource will be low.

b. Birds - Impacts on bird life will be similar to those described for mammals. As all bird species in the area except the California condor are common and widespread, short term and long term effects, both at the site and nationally, will be very minor.

c. Amphibians and Reptiles - Little effect is expected on the numbers or distribution of reptiles. The types and status of amphibians in the area are unknown, but those species present in the lease proposal area and in nearby Sespe Creek may be adversely affected in the following ways: (1) if use of water by the project lowers surface water supplies in seeps and ephemeral streams, it could result in loss of amphibians and a reduction in carrying capacity; (2) chemical pollution resulting from accidental spills from trucks or storage tanks might destroy local populations; (3) siltation from mine operations may destroy local populations or their food supply; or (4) physical alteration of the land during mining or plant development might eradicate local populations. The magnitude and significance of such occurrences cannot be estimated on the basis of existing data.

d. Fish - No fish occur within the lease area, so no direct effects will occur. However, water flowing from the lease area enters Sespe Creek, which has a small but recreationally and scientifically important rainbow trout fishery. This fish population might be adversely affected in the following ways: (1) siltation from mine operations might destroy invertebrate life on which fish feed, and might degrade spawning areas; and (2) chemical pollution from accidental spills from trucks or storage areas might kill fish directly or reduce their food supply. The probability of any particular event occurring is low, but collectively the possibility of some fish loss appears high and the impact significant. A reduction in surface water flows, resulting from use of ground water by the phosphate plant, is unlikely. If, however, a reduction occurs, the period when the Sespe Creek tributaries go dry may be extended. The mouths of these tributaries are important spawning streams. The result would be reduction in available spawning habitat.

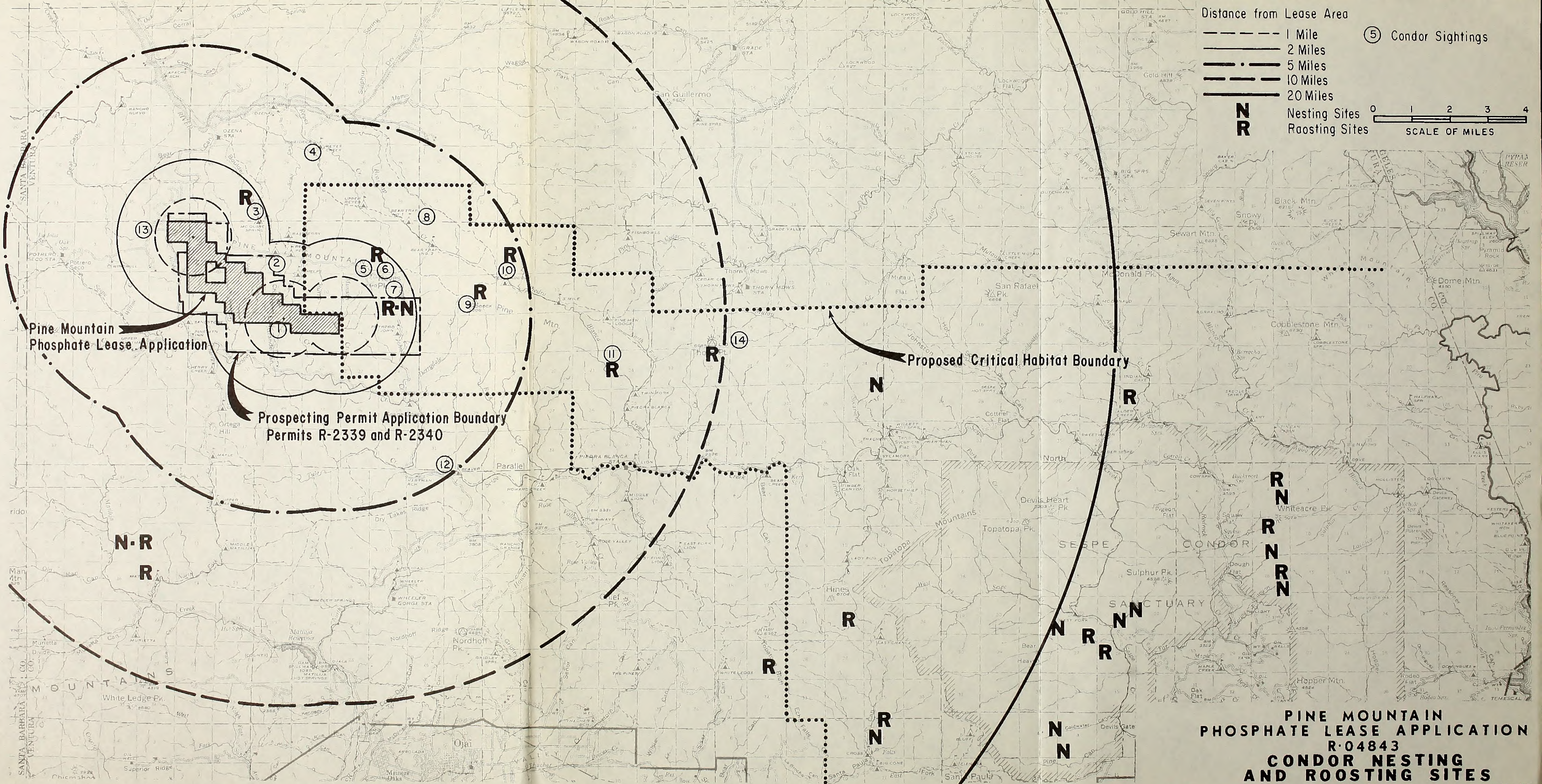
As was pointed out in the discussion of impacts on water quality, discharge of treated effluent during low flow periods due to seismic shaking could result in a decrease in dissolved oxygen in Sespe Creek. If this occurs and excess biological oxygen demand is created, loss of vertebrate and invertebrate constituents of the food chain would occur, as would direct mortality of trout.

Long-term impacts depend on what occurs during development and on how successful is rehabilitation of the mined area. If the fishery is not seriously affected by chemical spills, siltation or reduced water volume or quality, and if land stabilization prevents post-mining erosion and siltation, the fishery should remain viable.

affected in the following ways: (1) siltation from mine operations might smother invertebrate life on which fish feed and might destroy spawning areas; and (2) chemical pollution from accidental spills from trucks or storage areas might kill fish directly or reduce their food supply. The probability of any particular event occurring is low, but collectively the probability of some fish loss appears high and the impact significant. A reduction in surface water flows, resulting from use of ground water by the proposed plant, is unlikely. If, however, a reduction occurs, the [illegible] of [illegible] (2) may be [illegible]. The [illegible] of [illegible] to the [illegible] fishing [illegible]. The impacts [illegible] facility.

As was pointed out in the discussion of impacts on water quality, discharge of treated effluent during low flow periods due to extended droughts could result in a decrease in dissolved oxygen in [illegible] Creek. If this occurs and excess biological oxygen demand is present, loss of vertebrate and invertebrate constituents of the food chain would occur, as would direct mortality of fish.

[illegible] aquatic habitat in which [illegible] fish [illegible] had no [illegible] in rehabilitation of the mine area. If the fishery is not seriously affected by chemical spills, siltation or reduced water volume or quality, and if land stabilization prevents increased erosion and siltation, the fishery should remain viable.



PINE MOUNTAIN
PHOSPHATE LEASE APPLICATION
R-04843
CONDOR NESTING
AND ROOSTING SITES

Pine Meadows
Phosphate Lease Application
Prospecting Permit Application Boundary
Permits I-2589 and I-2840
N-R
R

3. Endangered Species

The only endangered wildlife species known to inhabit the vicinity of the proposed lease area is the California condor. The following data illustrate the geographic relationship between the lease area and condor use (Map 20).

a. Condor Use Area

(1) Nesting - There is 1 condor nest site (a cave that has been used as a condor nest, and still appears habitable) within 1-3/4 miles of the east end of the proposed lease, and within prospecting permit area #2340 and approximately 3 miles from the proposed location of the phosphate processing plant. Known condor nest sites are located at the following distances from various locations within the lease:

Nest in relation to processing plant	number of nest sites
Within 1 mile radius	0
1 - 2 miles distant	0
2 - 3 miles distant	0
3 - 4 miles distant	1 (East Quadrant)
4 - 5 miles distant	0
5 - 10 miles distant	1 (South Quadrant)
10 - 20 miles distant	3 (2 in East Quadrant) (1 in West Quadrant)

Nests in relation to east end of lease	number of nest sites
Within 1 miles radius	0
1 - 2 miles distant	1 (East Quadrant)
2 - 3 miles distant	0
3 - 4 miles distant	0
4 - 5 miles distant	0
5 - 10 miles distant	1 (South Quadrant)
10 - 20 miles distant	3 (East Quadrant)

Nests in relation to west end of lease	number of nest sites
Within 1 mile radius	0
1 - 2 miles distant	0
2 - 3 miles distant	0
3 - 4 miles distant	0
4 - 5 miles distant	2 (1 South) (1 East
10 - 20 miles distant	2 (1 East) (1 West)

Many condor nest sites are located between 20 and 30 miles to the east of the eastern end of the proposed lease.

(2) Roosting - Areas of trees or cliffs that are probably regularly used by condors for overnight roosting are located at the following distances from the lease site:

Roosts in relation to processing plant	number of sites	Direction (Quadrant)
Within 1 mile	0	
1 - 2 miles distant	0	
2 - 3 miles distant	0	
3 - 4 miles distant	0	
4 - 5 miles distant	1	East
5 - 10 miles distant	3	2 South 1 East
10 - 20 miles distant	9	4 East 3 North 2 West

Roosts in relation to east end of lease		
Within 1 mile	0	
1 - 2 miles distant	1 *	
2 - 3 miles distant	0	
3 - 4 miles distant	1	East
4 - 5 miles distant	0	
5 - 10 miles distant	4	2 East 2 South
10 - 20 miles distant	8	3 East 2 West 3 North

* Includes bathing/drinking pool

Roosts in relation to west end of lease	number of sites	Direction (Quadrant)
Within 1 mile	0	
1 - 2 miles distant	0	
2 - 3 miles distant	0	
3 - 4 miles distant	0	
4 - 5 miles distant	0	
5 - 10 miles distant	4	1 East 2 South 1 West
10 - 20 miles distant	7	4 East 1 West 2 North

Condors, while traditional in their use of roosts, are not as exacting in roosting requirements as they are in nesting requirements. There are numerous locations 2 to 30 miles from the lease are that might be suitable as condor roosts.

(3) Feeding areas - Condors forage over vast acreages and may occasionally find food at many locations. However, there are no regularly used condor feeding areas within 20 miles of the lease area.

(4) Mortality considerations - The Pine Mountain ridge area (1 - 3 miles north of the lease area) and the Mt. Pinos - Mt. Abel area (approximately 15 miles northeast) have been identified by the Condor Recovery Team as locations at which condors fly at low levels and roost along both these ridges, and both are popular hunting and shooting areas. No known shooting losses have occurred in the Pine Mountain area for at least 25 years. However, increased activity in the area increases the potential for shooting and other accidents along Pine Mt. Ridge. Actual condor sighting records from the general vicinity of the lease area are recorded in Figures 16 and shown on Map 20.

Current levels of recreational use (camping, automobile traffic, shooting, etc.) are probably partially responsible for the minor amount of condor use on Pine Mountain ridge west of Reyes Peak. In fact, building of the Pine Mountain (Hattie Russell) Road and attendant increases in public use may have adversely affected nesting use of the Reyes Peak area. Improving condor nesting and roosting conditions was a primary consideration when the U. S. Forest Service closed to motor vehicles the last (easternmost) one mile of the road in 1971.

Figure 29

LOCATIONS OF CONDOR SIGHTINGS,

PINE MOUNTAIN VICINITY, VENTURA CO., CALIFORNIA

Map No.	Name	Number of Sightings
1	Chorro Grande (mine area)	1
2	Pine Mtn. Camp-Pine Mtn. Ridge	5
3	Boulder Canyon	1*
4	Reyes Creek Camp-Scheideck	3
5-6	Reyes Peak-Pine Mtn.	14*
7	Upper Potrero John Creek	2
8	Beartrap #1 Camp	1
9	Haddock Peak	2*
10	Haddock Camp	4*
11	Piedra Blanco Creek	2*
12	Beaver Camp	1
13	Pine Mtn. Summit (Highway 33)	1
14	Thorn Point	Many*

* Condors have been observed roosting; most observations are of condors flying near the station.

b. Direct Impacts

At present, there are no known condor nest or roost sites in the actual area covered by the lease application, but condors do use the immediately adjacent area which has been proposed as critical habitat for the species. Past studies have indicated that mechanized activity and blasting within approximately 1 1/2 miles of nest sites will make the site unusable. The condor has a greater tolerance of activity near roost sites. The closest nest and roost sites and a condor bathing/drinking pool are about 1-3/4 miles from the east edge of the proposed lease area. The impact on condors caused by the actual physical change and anticipated increase in noise level and activities in the immediate lease area is contingent upon the distance and weather conditions at which these factors would render nest, roost, or bathing/drinking sites unusable. Under conditions of temperature inversion which are prevalent during the winter, sound from blasting will be magnified and carry greater distances.

If the 1-1/2 mile disturbance distance is considered absolute as a parameter beyond which no impact would occur, then the significance of the proposed lease to the welfare of the condor would be of little consequence. However, if 1-1/2 miles is viewed as a minimum distance and a boundary of approximately two miles is considered necessary to cover the disturbance area, the condor could be adversely affected to a significant degree through the loss of the nest site, bathing/drinking pool area, and critical habitat area. The two-mile distance was used by Sibley (1969) in predicting possible impacts of the Sespe Creek Project on the condor, while the 1-1/2 mile distance has been used in analyzing potential impacts of oil well operations.

However, recognizing that distinguishing between the effects of activity on condors at distances of 1-1/2, 1-3/4, or 2 miles is somewhat arbitrary, and recognizing that terrain, weather conditions, duration and extent of activity, and individual differences between condors could maximize the effects, there is another school of thought that the direct impacts of a phosphate mining operation on condors could be important at much greater distances. For example, Sibley (1969) noted that no condors nested within 2.3 miles of an active oil well in view of the nest site. Since there is no consideration in Sibley's report of activities of the magnitude of a phosphate mine, it is possible that adverse impacts on condor nesting could occur beyond 2 miles. Mining operations and ore processing involving daily heavy equipment use and weekly blasting has never been studied for effects on condors at 1-2 miles. The fact of the matter is that the literature is virtually silent on the behavioral and physiological effects of disturbance on condors at distances greater than 2 miles. This remains a relevant consideration, however, because of the immediately adjacent proposed critical habitat determination and the larger area covered by prospecting permit applications. If at a future date a lease was issued in this larger area, the condor would be adversely affected to a significant degree. This fact would certainly be addressed in the new environmental statement that would be required.

In addition to actual disturbance of condors, the emission of fluorides from the plant may pose an additional threat. According to EPA emission standards, up to 1,000 pounds of gaseous fluorides may be produced annually. These fluoride emissions will settle back on parts of the surrounding area, depending upon local meteorological conditions and dispersion characteristics, which have not been determined. Forest Service studies in Montana showed that heaviest concentrations of fluorides in living plants occurred within four to five miles of an aluminum reduction plant. The bathing/drinking pool is within 3-1/2 miles of the processing plant and 1-3/4 miles from the east edge of the lease. The up- and down-canyon winds of Sespe Creek will direct the emissions over the bathing/drinking pool and roost area part of the time. It is expected that increased fluorides will cause damage to vegetation and an increase in the fluoride content of the water and air. Under temperature inversions in the valley, air containing fluorides, will be inhaled by condors and affect lung tissues. It has been determined by research on birds and mammals that fluorides affect respiratory functions at low concentrations.[1]

The actual increase in fluoride content of the water is unknown at this time but it is assumed it will not increase much above two parts per million. If this assumption is not true and the fluoride content of the bathing and drinking water of the condor increases significantly above this amount, then the health of the condor and egg production could be affected. The number of miles the fluorides will be carried is unknown at this time.

If the prevailing winds carry the fluorides northwesterly more than 15 miles, the habitat of two other endangered species could be affected. These are the San Joaquin kit fox and the blunt-nose leopard lizard. Whether the effect on these species would be critical is unknown.

A final direct impact involves the electrical power supply to the mine site. Above-ground powerlines from the south, following the approximate route of Highway 33, would pose little hazard to condors except where the lines cross the Ventura River - Sespe Creek divide, west of Nordhoff peak. Lower flying condors might fly into a line at that point; the rest of the line would be in canyons seldom used by condors. However, any line from the north, west, or east could have a disrupting effect on nesting and roosting condors during the construction stages, and above-ground portions would be a hazard to ridge-following condors after construction.

The introduction of industrialization, mining, and related activities for up to 100 years could cause cumulative effects on the condor environment from potential human harassment, noise disturbance, air pollution accident with the powerline, accidental flushing of brooding or roosting birds, and the increased presence of man and machinery. The total effect of this impact will be difficult to forsee precisely but will result in compression of the birds natural breeding range and increase the hazards of accidental egg loss. When added to the precarious natality/fatality position of the species this trend of intruding factors should be considered a serious potential impact.

Parameters influencing condor tolerance to most of these disturbance factors are little understood, either on an immediate or cumulative basis, nor is it likely that such definitive information will become available in the near future. Subtle but critical stress factors associated with modification of traditional activity patterns could also be important to the survival of the species. The degree of risk of impact of the proposed action to the condor is dependent upon (1) the cumulative effect of various factors of mining and related activities, and (2) the current precarious existence of this species as influenced by its biological specialization and uniqueness, and by man-introduced factors unrelated to the proposed action. The current critical status of the condor population in terms of mortality and recruitment is dependent upon reducing all possible risks to this species.

C. Human Values and Land Use

1. Aesthetics

a. Visual Quality Objectives

Using the variety classification and sensitivity level determination previously discussed, visual quality objectives for the area were mapped. The proposed lease area falls within the retention (R), partial retention (PR), and modification visual quality objective ratings (Map 21).

(1) Retention

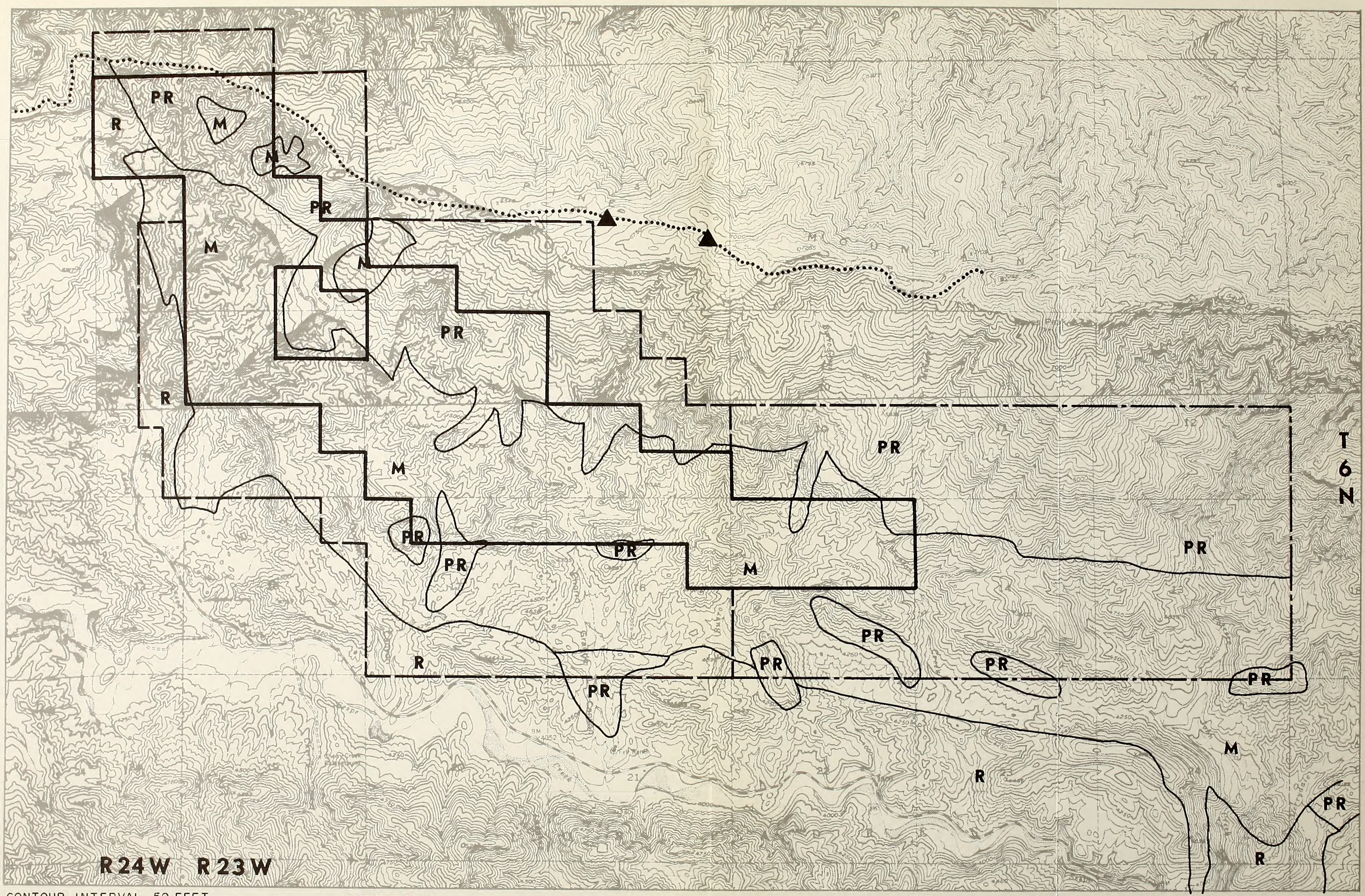
This objective requires the activity to be designed and located to blend into the natural landscape. The activity should not be apparent to the visitor.

(2) Partial Retention

The activity may be evident to the visitor, but should be subordinate to the visual and natural landscape character. The activity should repeat the dominant qualities found in the landscape.

(3) Modification

The activity may be visually apparent and may also be dominant in the landscape. It must borrow from the natural patterns of the landscape character type.



CONTOUR INTERVAL 50 FEET

0 1
SCALE OF MILES

LEGEND

- Lease Application R-04843
- Prospecting Permit R-2339
- Prospecting Permit R-2340
- Hattie Russell Road
- ▲ Existing Camp Sites

R	Retention
PR	Partial Retention
M	Modification

PINE MOUNTAIN
PHOSPHATE LEASE APPLICATION
R-04843
VISUAL ANALYSIS
VISUAL QUALITY

MAP 21

b. Impacts on Visual Quality

The majority of the proposed mining operations lie within a zone with a modification (M) quality rating. There are, however, some retention (R) and partial retention (PR) areas that would be severely impacted by the proposed development.

(1) The proposed access road right-of-way lies in "R" and "PR" zones as it cuts in from Highway 33 to the plant site.

(2) The processing plant lies in a "PR" zone. This visual quality objective cannot be met if the plant is allowed to dominate the landscape.

(3) Parts of the mineral deposit lie within "PR" zones. Quarries in this area will be visually dominant and the "PR" objective will not be met.

c. Visual Absorptive Capability

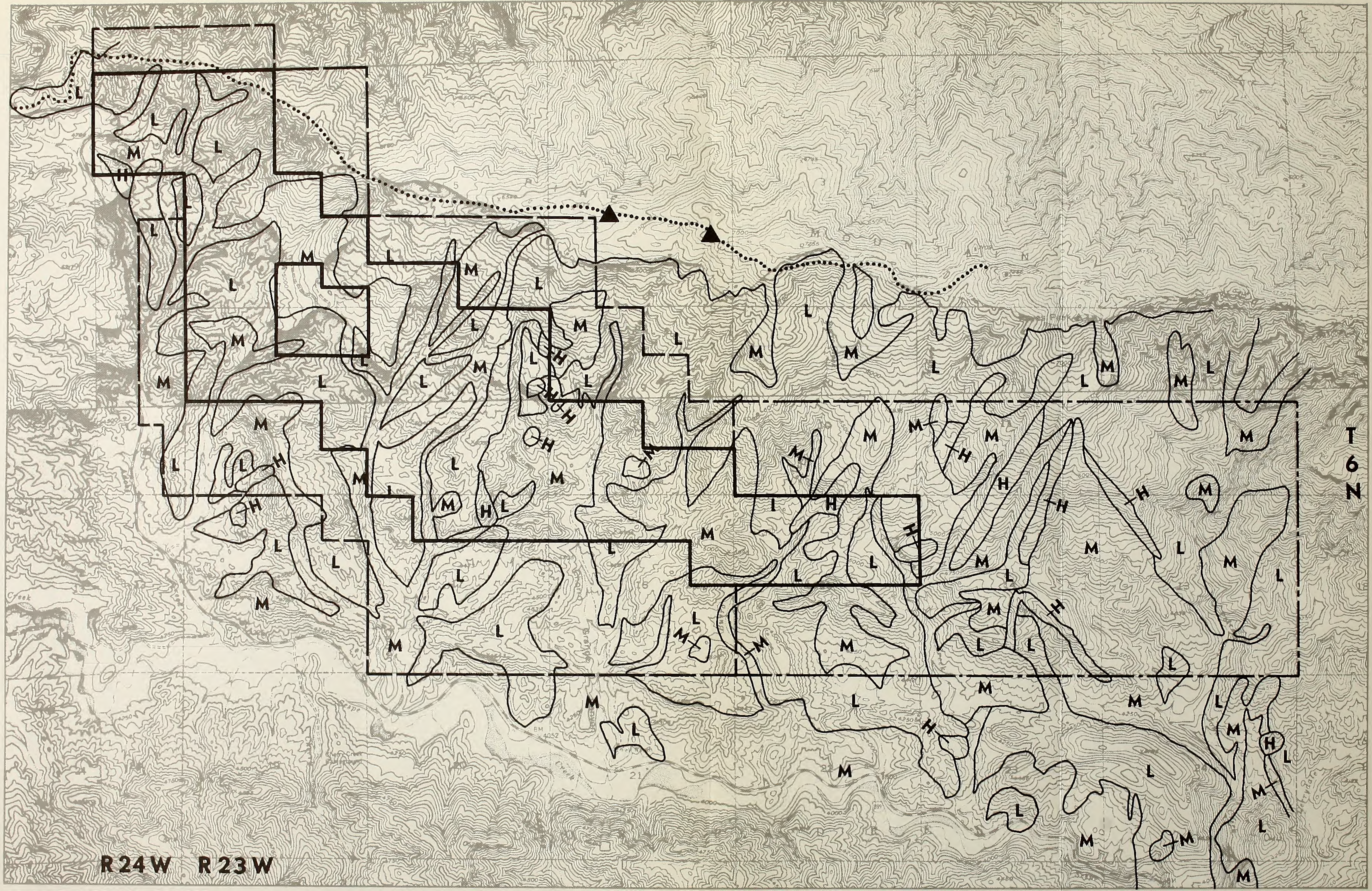
The classification of visual absorptive capability is based upon differences in the inherent physical capability of the landscapes within the study area to absorb impacts. It was derived from the terrain and vegetation data, and is displayed on the following matrix:

Visual Absorptive Capability Matrix

			Brush			
	Barren	Grass	Sparse	Moderate	Dense	Timber
Flatlands	L	M	H	M	L	H
Stream Channel Lands	L	L	H	M	L	H
Slopelands	L	L	M	L	M	M
Ridgelands	L	L	M	L	L	M
Mountain Peaks	L	L	M	L	M	M

H = High
M = Moderate
L = Low

A high rating indicates the greatest capability to absorb a visual impact and a low rating connotes the least capability to absorb visual impacts



CONTOUR INTERVAL 50 FEET

0 1
SCALE OF MILES

LEGEND

Lease Application R-04843
Prospecting Permit R-2339
Prospecting Permit R-2340
Hattie Russell Road
▲ Existing Camp Sites

H High
M Moderate
L Low

PINE MOUNTAIN PHOSPHATE LEASE APPLICATION R-04843

VISUAL ANALYSIS

VISUAL ABSORTIVE CAPABILITY

MAP 22

The entire development would lie within moderate or low capability rated areas.

(1) The processing plant, the office and parking areas, and part of the crusher facility lie in low capability areas.

(2) The gypsum storage area and Quarry P-1 lie within a moderate capability classification.

(3) The entire mineral deposit and the remaining quarries lie in low and moderate capability classes.

d. Summary of Visual Impacts

The proposed mining development will impose an intrusive activity upon the natural landscape. While portions of the landscape can sustain dominant features and activities, other parts of the area should not be occupied by visually dominant facilities or activities. The access road, processing plant and some of the quarries occupy this type of area and they will be visually disruptive. Many of the plant facilities will be constructed in areas least able to absorb visual impacts.

2. Noise

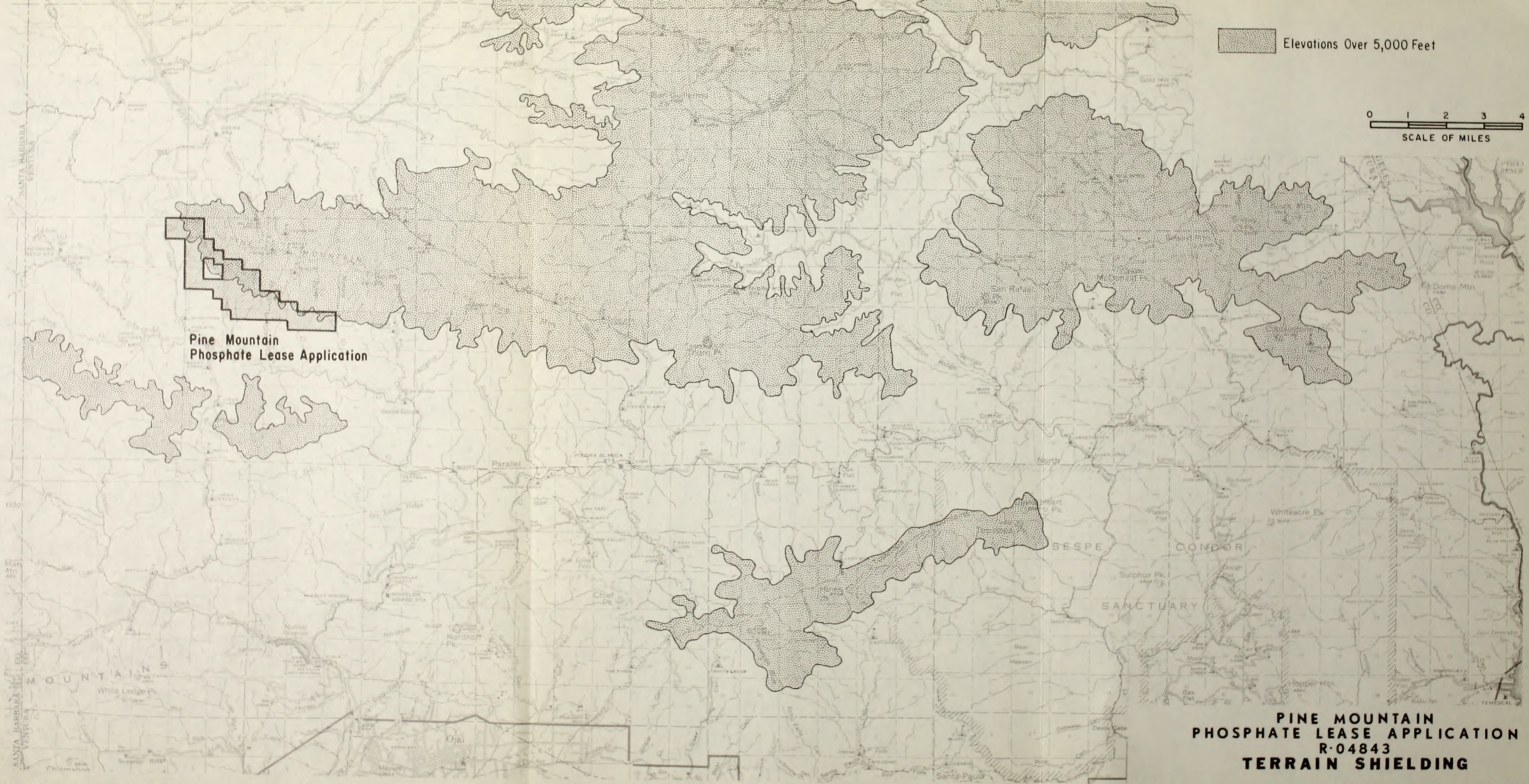
In attempting to assess the impact of different noise-causing activities, it isn't possible to pinpoint a single sound level with any degree of certainty. This is because of the inherent variability among noise sources of a given type, meteorological conditions, and the existing noise environment - all factors which determine noise levels at a given point.

Sound propagation is influenced by distance (sound pressure level decreases 6 dB with each doubling of distance from the source), sound absorption by the atmosphere, sound refraction of vertical gradients of wind and temperature, scattering by turbulence and shielding by terrain. In Bolt, Beranek and Newman's study, it was necessary to consider only sound propagation during daylight hours.

The study indicated that the overall observed level of noise from bulldozers, operating three-quarters of a mile downwind on a line-of-sight from the observation point, was at a sound pressure level of about 55 dB. This can be compared to the observed overall sound pressure level of 88 dB at 150 feet. At 150 feet, 84 dB was recorded in the 63 c.p.s. band - the highest sound pressure level recorded for bulldozers. At the upper end of the frequency spectrum, 46 dB was recorded at 8,000 c.p.s.

Prevailing afternoon winds in the summer and fall (based on fire weather records at Thorn Point, approximately 20 air miles east of the Pine Mountain area) are from either the South or Southeast, and average 8-11 miles per hour.

The Pine Mountain and Reyes Peak recreation sites lie on the crest of Pine Mountain about one and one-half miles above the phosphate plant site. There is little shielding between these sites and the plant. Noise levels at these recreation sites during summer afternoons may be between 10 dB to 20 dB above naturally occurring background levels as a



PINE MOUNTAIN
PHOSPHATE LEASE APPLICATION
R-04843
TERRAIN SHIELDING

MAP 23

result of mining equipment operation. Equipment noise would be greater than that propagated by the quietest aircraft operating over the area, but would be less than that emanating from the noisiest aircraft.

Noise from equipment operation will probably be evident in Sespe Canyon and along Highway 33. During summer and fall afternoons, however, the upslope winds will reduce sound propagation downslope; most of Highway 33 is somewhat shielded from the mining area by terrain; and mining operations will not be carried out at night - the time when downslope winds from the mining area are most prevalent. Therefore, sound pressure levels in Sespe Canyon and along the highway will probably be less than along the top of Pine Mountain.

Blasting will not be necessary during the first 10 years of operation, since there is little gypsum in Quarry P1. Blasting will be necessary in the other quarries, which are overlain by a 30-foot thick bed of gypsum.

Blasting will be conducted, using an assumed charge weight of 1000 pounds of ANFO (ammonium nitrate - fuel oil misture) per blast. The number of drill holes per blast will depend upon whether 3-inch or 2-inch diameter holes are used; both will be used in the proposed operation. Using 2-inch holes (since this involves the most drilling), for example, there will be 28-29 holes per blast, divided into 2 or 3 delays of 11-12 holes per delay. The charge weight per delay would be approximately 400 pounds ANFO.

The Bureau of Mines made estimates of air and ground vibration levels for a charge weight of 400 pounds per delay. Charge weight delay has been found to be more significant in determining ground vibration levels than total charge weight. This principle was extended to apply to air blast as well.

Calculations were made of the expected level of ground vibration (in inches/second) and air blast (overpressure in pounds/square inch) at various recreation sites and rustic campgrounds in the vicinity of the mine area (see Figure 30). Vibration levels were also calculated for the presently inactive condor nesting site, near Potrero John Creek. The sound pressure levels (decibels) cited should be considered as approximating maximum levels, since they consider only the attenuating variables - atmospheric absorption, refraction of vertical wind and temperature gradients, scattering by turbulence and terrain shielding - were not considered; however, these would reduce sound pressure levels below the figures given in Figure 31.

Figure 30

Estimates of Air and Ground Vibration Levels for Charge Weight/Delay of 400 lb.

	Slope Distance (ft)	Particle Velocity (in/sec)	Overpressure (psi)	dB(re000) microbar
Oak Camp	1210	0.2	0.008	129
Three Pines Camp	1010	0.2	0.0009	139
Chorro Springs Camp	5930	0.02	0.0015	115
Reyes Peak	8030	0.01	0.001	110
Pine Mtn. Camp	8180	< .01	0.0009	110
Sandstone Camp	7650	0.01	0.001	110
Cherry Creek Camp	9300	< .01	0.0007	108
Condor Nesting Site	9700	< .01	0.0006	106
Potrero John Camp	9500	< .01	0.0006	106
Sespe Gorge Camp	114,600	<< .01	0.0005	105

Since sound pressure levels decrease 6 decibels with every doubling of distance, it is possible to calculate theoretical maximum levels at various distances from the blast source. The sound pressure level at 1000 feet is approximately 130 dB, corresponding to a level of about 150 dB at 100 feet from the source. Therefore, based solely on the inverse square law, the following relationships can be hypothesized:

Distance (feet)	Sound Pressure Level (dB)
100	150
1000	130
2640 (1/2 mile)	122
5280 (1 mile)	115
7920 (1-1/2 miles)	112
10560 (2 miles)	110
26400 (5 miles)	102
52600 (10 miles)	95
105600 (20 miles)	90

Actual sound pressure levels at these distances would be less than those discussed above. Sound propagation in the lower frequencies (62.5 cps, 125 cps) follows the inverse square law more closely than does sound in the higher frequencies (for example, at 8000 cps, the sound pressure level at 3500 feet is 70 dB less than it is at 100 feet). As reported in the Bolt, Beranek and Newman study, blasting propagates sound primarily in the lower frequency bands. Atmospheric abosorption is less in the lower frequencies than at higher frequencies, so the attenuating effect of absorption will not be as great as it would be with higher frequency sounds. Refraction from vertical variations in wind and temperature can scatter sound and reduce sound pressure levels 5 to 15 decibels at a distance from the source.

The major attentuating effect that is not considered in the above calculations is that resulting from terrain shielding. Most of the area, lying to the east, west and north of the mining area is shielded, to some extent, by terrain (Map 23). The only areas that are relatively unshielded are the areas up Chorro Grande Creek, including the Reyes Peak recreation site, and an area on the north facing a ridge that lies south of Sespe Creek. Since terrain has a major attenuating effect upon sound propagation, the actual sound pressure levels for those locations to the east, west and north of the mining site would be considerably less than those discussed above.

The overall effect of blasting in the area can be considered equivalent, within a distance of one-half mile, to three additional sonic booms per week. At 10 to 20 miles, the theoretical maximum effects of blasting are equivalent to doubling the sound pressure level resulting from the combination of natural background noise levels and the noisiest aircraft passing overhead, for less than a second, three times per week, for 50 years.

Equipment used in drilling the blast holes will also contribute to the overall increase in sound pressure levels in the area. Both in terms of frequency and noise propagation, this equipment is assumed to have similar sound generating properties to the mining equipment and can be considered to be included within the sound envelope of that equipment.

3. Cultural and Historic Values

Although an archaeological investigation did not identify any sites on the proposed lease area, several factors indicate a high probability of aboriginal use in the general area.

a. An artifact (an obviously utilized chert flake) was discovered near the parcel of private property within the lease area.

b. Archaeological resources have been reported in nearby areas, including portions of Chorro Grande Canyon and Pine Mountain ridge. Particularly noteworthy are the reported remains along the sandstone outcrop parallel to Highway 33 and at Chorro Grande Canyon.

c. Natural resources (food, raw material plants, animals, water) and physical conditions (knolls and low-slope lands above water sources) increase the likelihood of past occupation. Settlement pattern data for nearby Potrero Seco indicate that similar environments were occupied.

A check of the archaeological maps for Ventura County indicated that there is at least one recorded archaeological site located in Section 1, T. 6 N., R. 24 W., SBM; and that the chances for the location of other archaeological sites in Sections 5, 6, 7, 8, 9, 15, 16 and 17, T. 6 N., R. 23 W., range from good to excellent because of their proximity to Sespe Creek, a major drainage system. An example of archaeological site density is indicated in a California Department of Water Resources Survey in the Hard Luck Reservoir on the Piru Creek Drainage: twenty-five sites were found within one square mile. Characteristics of that area are very similar to those of Sections 16 and 17 above.

Since the archaeological investigation did not identify any sites in the proposed lease area, the impact on archaeological values is indeterminable at this time. There is a high probability of archaeological resources occurring in the area. No sites on the National Register of Historic Places will be impacted by the proposal, nor are there any sites in the process of being nominated to the National Register in the area.

4. Recreation

The Los Padres National Forest submitted the following statistics and estimated loss of recreation use (in visitor days) that would result if this proposal is implemented (Figure 31).

Figure 31

Loss In Recreation Use

	Estimated Use[1]			
Site	1971	1972	1973	Estimated Loss
Three Pines (RTS)	1700	700	1200	1700
Oak (RTS)	1600	1100	1400	1600
Chorro Springs (RS)	2000	2000	2000	300
Pine Mtn. (RS)	6200	6500	4300	200
Reyes Peak (RS)	5200	5500	4100	200
Potrero John (RTS)	1500	1500	1500	0
Sandstone (RS)	1400	1400	2500	0
*Haddock (RTS)	1700	1700	1700	0
Sespe Gorge (RTS)	4100	4300	3700	0
Total	24400	24700	22400	4000 (18%)

Trails	Est. Use 1971	Est. Loss
Chorro Grande	1000	750
Reyes Peak	3000	300
Potrero John	500	0
*McGuire Trail	500	0
*Reyes	1000	100
	6000	1150 (19%)

(RS) Recreation Site
(RTS) Rustic Trail Site

*Greater than 2-1/2 miles from proposed lease site.

[1] Visitor Day = 12 hours

The proposed mining operation will result in a loss of 20 percent of recreation use in developed recreation sites and rustic trail sites, and about a 20 percent reduction in trail use in the Pine Mountain area. A loss of 3750 hunter days of use within 4 miles of the plant site is anticipated.

The mining operation would require relocation of the Chorro Grande hiking trail, the Oak and Three Pines rustic trail campsites (1972 Rec. Map). The danger of added truck traffic places an additional hazard on the entrance to the Wheeler Gorge campground. The increased traffic increases the risk to those campgrounds nearest to Highway 33. For instance, there is one unit approximately 30 feet distant from the highway (horizontally) and 8 to 10 feet below the highway (vertically); there are 9 units within 50 feet (horizontally) of the highway. These units would be endangered in case of a runaway or rolled over truck, or other highway truck hazards.

The vehicle traffic is estimated at approximately 275 vehicles per day along the Sespe Creek for fishing, and about 800 to 1,000 vehicles per day use the highway during hunting season. This traffic, interspersed with the vehicular traffic associated with the mining proposal, is bound to create conditions of increased hazards to recreation users of the area.

With the removal of the vegetation from large areas, even on a temporary basis, there is a possibility of increased sedimentation in the streams, which could reduce the fish resource. The immediate area of the proposed lease would no longer be available for hunting. There would be a loss of the area's attraction as a provider of an environmentally diverse recreation experience, a primary objective of Forest Service management. The area lies within a 1-1/2 hour drive of the Los Angeles metropolitan area.

Figure 32

Estimated Use and Loss Within the Reyes Peak Recreation Area

Activity	1971	1972	1973	Est. Loss
Camping	9800	10400	10400	500
Snow Play	1600	1600	700	30
Hunting			1600	1000
Hiking			1200	1050
Horseback			700	600
Auto-Cycle-Scooter			1200	100
Picnicking			500	150
Total	11400	12000	16300*	3430 (21%)

* There is an additional 12,000 visitor days use in adjacent areas.

The Sespe Creek fishery currently provides about 29,000 visitor-days of use on 40 miles of stream. This is one of the last high-quality fisheries remaining in Southern California. Even a temporary loss of the fishery must be considered a significant high-level environmental impact. Losses can result from reduction in dissolved oxygen content and from acid spills.

Figure 33

Fishing and Recreation Along Sespe Creek

	Estimated 1971 Use (in visitor days)		Estimated 1971 Use (in visitor days)
Sespe Gorge	4,100	Hartman	700
Beaver	6,000	Cottriel	1,800
Howard Creek	2,400	Sweetwater	1,000
Lion	29,200	Alder Sespe	1,500
Bear Creek	14,400	West Fork	1,400
Oak Flat	1,400	Thatcher	2,600
		TOTAL	66,500

Activities at Above Camps:

Fishing	15,500*
Camping	66,500
Trails & Roads	30,000
TOTAL	111,500 visitor days

Campgrounds Along Highway 33:

	Estimated 1971 Use
Sandstone	1,400
Sespe Gorge	4,100
Beaver	6,000
Holiday	4,600
Wheeler Gorge	69,200
TOTAL	85,300 visitor days

5. Human Populations

The proposed phosphate operation will introduce approximately 70 workers into the Pine Mountain area. Not all of these workers will be on-site at any one time - the mine will operate on two shifts and the processing plant on three. No population increase is expected in the immediate vicinity of Pine Mountain as a direct result of the proposed phosphate operation. No housing on-site is contemplated. It is planned that most U.S. Gypsum employees will commute to the site from Ojai and Ventura, about 25 and 40 miles distant, respectively. Some personnel may choose to commute from New Cuyama, in Santa Barbara County, a distance of about 35 miles. (New Cuyama, built by Atlantic-Richfield Company, has recently been sold to a religion organization. Its availability for housing of U.S. Gypsum personnel is, therefore, questionable.) The proposed action will have no direct impact on human populations in the Pine Mountain area, and the impact of an increase of 200-300 people on the relatively large communities of Ojai (15,000) and Ventura (56,000) will be slight.

Indirect impacts on human populations will also be slight. With the exception of one parcel at the mouth of Chorro Grande Creek that is indicated as Limited Residential, all private land along Highway 33 is indicated as Limited Recreational in Ventura County's Phase II General Plan. Areas indicated for Limited Recreational uses will be eventually rezoned to 5- to 20-acre densities. The character of the private land serves to naturally limit development. The lack of public services will also constrain future population growth in the area.

Although there are some ambiguous indications of an acceleration in possible future development and population growth in the north half of the county, if growth occurs, it will be unrelated to the proposed action. The indicators point to a possible stimulation of recreational subdivision in the far northern and northeastern portions of the county as a result of adjacent development in other counties. These developments will have no discernible effect on the Pine Mountain area.

6. Land Use

The introduction of the proposed mineral development into an area presently characterized by low intensity uses, such as grazing and watershed, will have significant direct and indirect effects.

a. Present Use

(1) Private Lands

The use of private lands in the vicinity of Pine Mountain is presently characterized by low intensity development. Only one tract, the Pine Mountain Inn, is presently zoned for commercial development (CD). The remainder of the private lands in the Pine Mountain Area are zoned rural-agricultural (RA). Minimum lot sizes average 10 to 20 acres. The proposed development will have a minimal effect on these present uses. There may be an increase in pressures for more intensive development of the Felt Ranch and Upper Hartman Ranch properties. However, upzoning of these properties would be a prerequisite to development of additional commercial facilities. As discussed below, under Land Use

Planning, this type of upzoning is contrary to the expressed policy of the County.

The 140-acre tract of private land that lies within the proposed lease area, in Sections 6 and 7, is presently used for livestock grazing in conjunction with an adjacent Forest Service special use pasture. This pasture would become unuseable with the development of mining quarries.

No housing facilities will be developed by the company. It is contemplated that workers will commute from the Ojai and Ventura areas. The introduction of 200-300 people into these rapidly growing communities should have no significant impact.

(2) Forest Service

The present Forest Service management of the Pine Mountain area has the objective of maintaining an aesthetically acceptable landscape. The area is managed as a "distant view" area. As is pointed out in the section on aesthetics, portions of the proposed development will be highly intrusive, introducing an element of dissonance into the natural landscape of the Pine Mountain area. The proposed development will, therefore, have a direct impact on the Forest Service management goals for the Pine Mountain area, since there is an inevitable incompatibility between these goals and the type of intensive development proposed.

The 20-inch Atlantic Richfield Company gas pipeline that crosses the western portion of the proposed lease area may require relocation if a mine quarry is developed along the western edge of the proposed lease. This would occur in 40-50 years (the western edge of the lease will be the last area developed). Since the precise location of the western quarry is not presently known, relocation remains a possibility and not a certainty.

As discussed above, livestock grazing in the area will be incompatible with the proposed mineral development. The Forest Service permits grazing use on an 85-acre tract adjacent to the private lands in Sections 6 and 7, during the period September 16 to January 31. The Forest Service special use pasture has a grazing capacity of 42 animal unit months. This grazing will be lost if the proposed development proceeds.

The Forest Service has proposed construction of the fire suppression station in the NE-1/4, Section 1, T. 6 N., R. 24 W., which lies within the proposed lease area. If a mine quarry is located in close proximity to Highway 33 at this point, the mining operation will be incompatible with use of the proposed administrative site. On the other hand, the proposed development may increase the risk of wildfires occurring in the area. The need for additional fire suppression facilities would then become more urgent.

b. Land Use Planning and Controls

(1) Ventura County

The Ventura County Phase II plan, adopted by the Board of Supervisors on February 20, 1973, provides the best statement of county policy on development of the north half of the county. This planning effort reached two general conclusions about development in the north half of the county: (a) "Public service resources available for a major development in the north half are severely limited, and the natural resources of the north half are maintained in a generally delicate balance; (b) Almost inevitably, development will have a negative impact on existing public services and a disruptive influence on the maintenance of the natural resource or ecological balance of the north half."

Ventura County has adopted a policy of limited development in the north half, recognizing the integrity of existing land uses. In meeting these goals, two types of limited land use were considered appropriate. Limited Residential uses consist of presently existing land uses and the existing zoning within the proposed Limited Residential areas. The present zoning is primarily Residential - Exclusive and Rural Agricultural. Limited Recreational uses comprise the other type of appropriate land use for the area. This category will protect presently existing land uses and an eventual rezoning to densities of 5-, 10- and 20-acre classifications will be considered (this will generally constitute downzoning of lands in these categories).

The proposed development runs completely counter to the express policy and implementation objectives of Ventura County. The type of industrial development proposed runs counter to the goals of maintaining the ecological and aesthetic integrity of the northern portion of the county. Indirectly, it will set an adverse precedent, limiting the county's ability to maintain the integrity of the remainder of the north half.

(2) National Forest

(a) Present Multiple Use Plan

The Forest Service multiple-use plan for this area divides the area into four zones: The High County Zone, the Interior Zone, the Canyon Bottom Zone, and the Travel Influence Zone. The management direction for these zones is discussed in Section II, Description of Existing Environment. In all zones priority is given to protection of watershed values, maintenance of aesthetic quality and enhancement of recreational opportunities. The proposed development will, to some extent, run counter to the management direction in all zones.

(b) Long-range Planning Units

The Forest Service is currently engaged in developing long-range management plans for the resources in the Los Padres National Forest. These long-range management plans will replace the current multiple use plans. The plans will set general management direction for a 10- to 20-year period.

The proposed development will tend to direct the outcome of planning. It will foreclose options for future management of the area. A major industrial development such as the proposed mining operation will affect the mix of possible future uses in several ways. It will eliminate features of the area that tend to make it desirable for less intensive recreational pursuits. As development proceeds, it may require restriction of activities that conflict with the mining operation. For example, it might be necessary to restrict recreational activities that pose potential safety hazards (e.g., hunting) or possible liability problems. Alternatives addressed to the possibility of managing the area in its present, relatively undisturbed condition would be preempted.

The area to the east of the proposed lease area, and including a major portion of prospecting permit R-2340, is included within a condor study area boundary. While it has been determined that the probability of impact on the condor from the proposed mining operation is low, the development will foreclose the option of expanding the condor study area to the west.

The Forest Service has completed an inventory and review of all roadless areas over 5,000 acres in size. One of these roadless areas, the Pine Mountain No. 5, consists of 63,840 acres of national forest lands and 160 acres of private lands. This area includes the eastern portion of the proposed lease (NE 1/4, Section 15, T. 6 N., R. 23 W.) near Munson Creek and also includes a considerable portion of prospecting permit R-2340. The proposed action would result in elimination of approximately 25 acres of potential wilderness values from this area.

Another study area, the Matilija No. 3, lies outside of the proposed lease area to the southwest.

The proposed mineral development would preclude the option of including that portion of the inventoried roadless area, lying within the proposed lease, within the Wilderness System.

In addition to the loss of 25 acres of potential wilderness values in the Pine Mountain #5 Inventoried Roadless Area, development of the eastern portion of the proposed lease will create conditions that are incompatible with enjoyment of wilderness. Much of the eastern portion of the proposed lease area is visible from Pine Mountain #5 and the sights and sounds of mining will be dissonant and conflict with the natural attributes of the area. Possible losses of vegetation through emission of fluorides will create a human influence, inconsistent with natural values.

7. Transportation

Current average traffic on Highway 33 ranges from 350 vehicle-per-day, at Ozena junction, to 410 vehicle-per-day, at Wheeler Springs (the 1600 vehicle-per-day traffic count at the National Forest boundary is mainly associated with the area around Matilija Reservoir). While some increase in traffic can be expected over the next 50 years, it is not anticipated that traffic levels will approach capacity during this time period.

The proposed phosphate mining operation will increase traffic on weekdays, year-round, by 76 trips per day, considering haulage of chemical supplies to the site, haulage of phosphate from the site and personnel transport to and from the site. Fuel oil will be hauled to the site every other day, or 2 to 3 times per week. During the spring months of March, April and May, an additional 42 trips per day will be made to haul gypsum, used as a soil amendment, to markets in the San Joaquin Valley and Southern California.

Traffic from the phosphate operation will be split at the junction of the plant access road with Route 33, at Chorro Grande Creek. About 80 percent of this traffic will travel north towards Maricopa. The remaining 20 percent will travel south through Ojai.

If we consider that the current average-daily traffic at Ozena is 350 vehicles, the proposed phosphate operation would increase traffic by 65 vehicles per day (19%) during weekdays throughout the year. Weekend traffic would not be affected. During March, April and May, traffic would be increased by 91 vehicles per day (21%). Overall, daily traffic on this segment of Route 33 would increase to 415 vehicles per day throughout the year, and to 441 vehicles per day during the spring. This would represent about 18 percent of the capacity of Route 33 in this segment.

In the segment south from Chorro Grande Creek to the National Forest boundary, traffic will be increased by 13 vehicles per day through the year. During the spring months, there will be an increase of 24 vehicles per day. The present average daily traffic count in this segment is 410 vehicles. Increased traffic attributable to the phosphate mining operation would bring the average daily traffic count to 423 (yearlong), or 434 (springtime only). This represents an increase in average daily traffic on this segment of 3 percent and 5 percent, respectively.

As in the segment north of Chorro Grande Creek, the traffic levels, including the increased traffic from the phosphate operation, are well within Route 33's capacity as determined by CALTRANS. All traffic would have to increase between 500 to 700 percent before the highway's capacity would be exceeded.

If, however, we employ standards developed by AASHO rather than the CALTRANS standards, a somewhat different conclusion is reached. These standards indicate that for a design speed of 40 mph, on a 22 foot road in mountainous terrain, at 20 percent track-traffic, the peak hour capacity is 140 vehicles. In the case of Highway #33, if these standards are used the highway will be at 78 percent of capacity if the proposal is implemented. The effect on traffic safety would be much greater under these assumptions.

CALTRANS is the agency having jurisdiction over Highway #33. Decisions on upgrading the highway will be made by CALTRANS. Their standards are, therefore, the ones used in this assessment. It should be noted, however, that there is an unresolved controversy about the capacity of Highway #33.

Increased traffic will have an effect upon traffic safety. Some information is available on traffic accidents on Route 33, during the period from 1968 - 1971, as displayed on the following page:

	All Accidents		Pedestrian		Vehicle Occupants	
	No.	Percent	No.	Percent	No.	Percent
Total	159	100.0	3	100.0	136	100.0
Fatal	4	2.5	-	-	8	5.9
Injury	85	53.5	3	100.0	128	94.1
Property Damage	70	44.0	-	-	-	-

Thirty-nine percent of the accidents during this period occurred at night, while the remaining sixty-one percent occurred during daylight hours. Traffic from the proposed phosphate operation should be fairly equally distributed between daylight and nighttime hours. The heaviest traffic from the plant will occur over the portion of Route 33 where existing traffic is lightest, the segment running north from Chorro Grande Creek.

The addition of a significant volume of heavy truck traffic - an increase of 21 percent of total traffic in the segment north of Chorro Grande, and an increase of over 250 percent in truck traffic - will increase the safety hazard to travelers on Route 33; however, this increased traffic will still represent only 20 percent of total capacity on the highway. The addition of heavily laden, slow-moving trucks will cause sudden traffic speed changes on grades, increasing the probability of accidents. No estimate, however, can be made of the probable change in accident rate. The transport of corrosive materials - 24 loads of sulfuric and phosphoric acid daily - over this segment will have a major effect on the nature of the safety hazard, but should not influence the accident rate, per se.

The proposed mining operation, in addition to affecting traffic volume and highway safety, will have an impact upon road maintenance. There are 34 bridges between Ojai and Maricopa, 13 of which are wholly or partially of timber construction. These timber bridges normally remain serviceable for 10 to 20 years. The proposed project would shorten the serviceable life of the bridges between 5-10 years (replacement is currently scheduled in the period 1980-1990). Bridge replacement costs are estimated by BLM engineers to be approximately $30 per square-foot. Assuming a roadway width of 24 feet and a legnth of 75 feet, replacement costs would be about $55,000. If we assume that a bridge would normally remain serviceable for 20 years, and that increased truck traffic from the mining operation would reduce the serviceable life by one-half, costs would be increased by $715,000 over a 20-year period.

Other road maintenance costs, such as road surfacing, would also increase by an indeterminate amount. Portions of the roadway are resurfaced annually. The increased frequency of resurfacing, attributable to the increase in heavy truck traffic, is not predictable.

Two sections of Highway 33 in Ventura County, totaling 23.2 miles, have been officially designated as a State Scenic Highway. This designation is designed to control land use adjacent to the highway and is not directly related to highway design.

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IV. MITIGATING MEASURES INCLUDED IN THE PROPOSED ACTION

The mitigation measures which are included in the proposed action are limited to those responsibilities, commitments, and stipulations that are directly related to the issuance of the proposed preference right phosphate lease. If the lease is issued, additional specific mitigating measures will be required at the time the mining plan is forwarded for approval. These additional measures will then be included as requirements and stipulations in the approved mining plan.

The effectiveness of all of the measures described in this section is dependent upon sound planning, coordination between all resource activities and uses, professional expertise, careful on the ground administration, and cooperation from the lessee in complying with existing statutes and regulations. The following discussion of mitigation measures is presented on a component by component basis. The same mitigating measure often applies to more than one component, therefore the emphasis in describing the measures is placed on the most critical component impacted by the action.

A. Mitigating Measures

1. Air Quality

The Clean Air Act (42 U.S.C. 1857 et seq., as amended) established the policy that the prevention and control of air pollution at its source is the primary responsibility of state and local governments. Among other things, the Act provides for the establishment of national primary and secondary ambient air quality standards. It also requires that the States develop implementation plans which specify the manner in which the national primary and secondary ambient air quality standards will be achieved and maintained within each air quality control region in the State. In the case of motor vehicles and other moving sources, compliance is attained through testing and certification of the motor vehicle prior to manufacturing of the vehicle or vehicle engine.

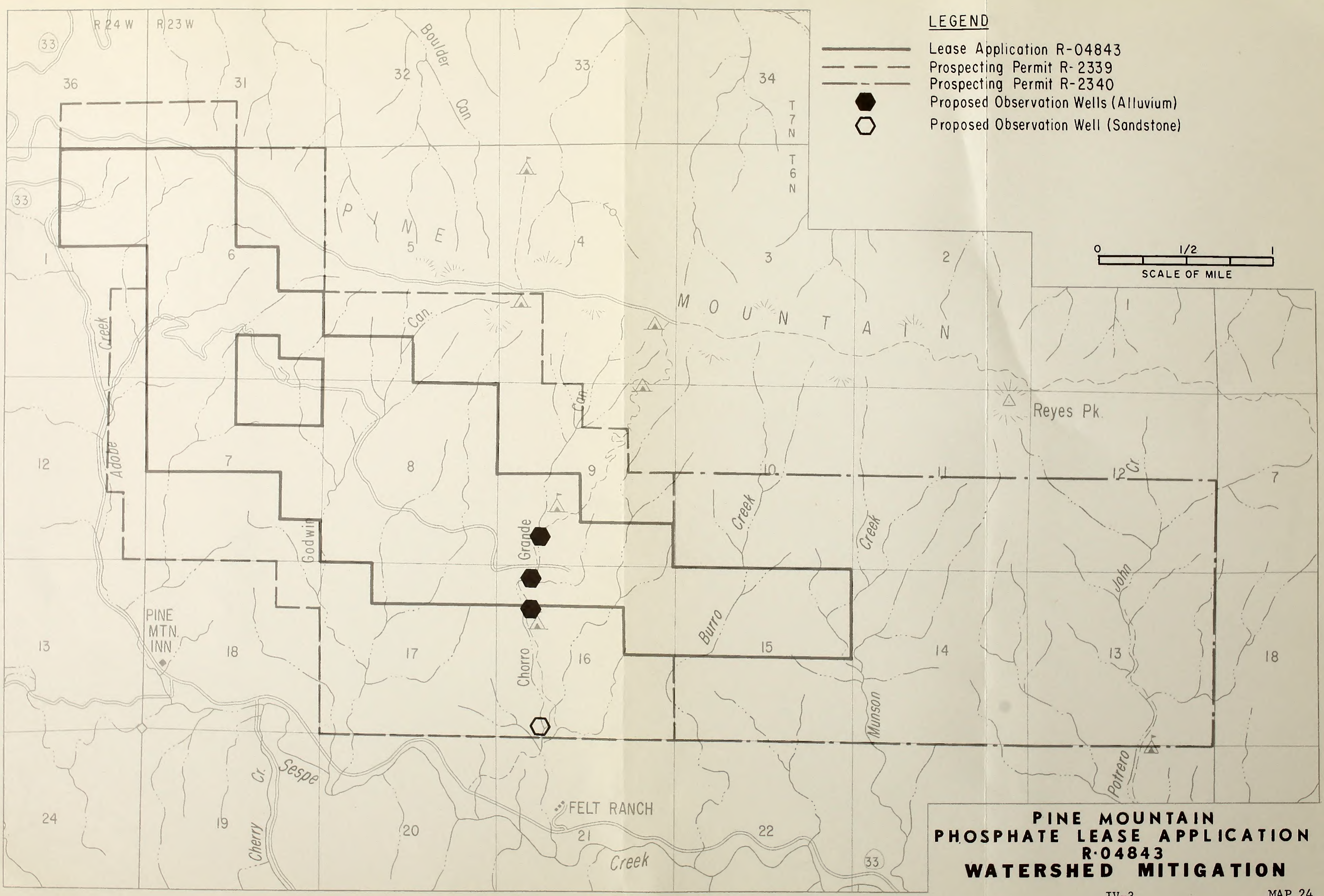
Pursuant to the requirements of the Clean Air Act and the California Administrative Code, eleven air basins have been designated for the purpose of: (a) identifying present ambient air quality, and (b) developing implementation plans to insure that California and national ambient air quality standards are not exceeded. Ventura County lies within the South Coast Air Basin.

The California Air Resources Board (ARB) has designated the South Coast Air Basin as an "Air Quality Maintenance Area." The ARB recognized the critical problems in the air basin in attaining and maintaining ambient air quality standards, especially for the pollutants: particulates, oxidants, CO, SO_2, and NO_2. The design of the proposed plant will have to comply with all guidelines and constraints established as part of the Air Quality Maintenance Plan.

By EPA's regulations for new source reviews, the Administrator of EPA will set an emission limit for the plant which represents that level of emission reduction which would be achieved by the application of the best available control technology.

The Ventura County Air Pollution Control District (APCD), established in accordance with the California Health and Safety Code, Chapter II, is responsible for promulgation of orders, rules and regulations with respect to air quality, and enforcement of these regulations. The APCD has the primary responsibility for the control of non-vehicular source air pollution within Ventura County. It is impowered to establish standards more restrictive than State standards.

The proposed production process may result in emissions of gaseous material, particularly fluorides. The Ventura County APCD



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may require that monitoring be conducted and may establish standards for fluoride and other emissions. Fugitive dust emissions (particulates) will result from the mining operation and from ore transport and administrative use of mine haulage and service roads. Sprinkling, oiling, or other means of dust control shall be required on roads and trails, where necessary.

2. Water

Available hydrologic data indicates that some mining of ground water will occur during the life of the project, however the aquifer system will "refill" after pumping stops. The company shall be required to drill observation wells into the alluvium along Chorro Grande Creek and into the Sespe Formation Sandstone (see Map 24). If the results of monitoring these observation wells and existing wells in the area indicate that the operation is resulting in a reduced flow in Chorro Grande Creek or is tapping the underlying Sespe Formation aquifer, the company will be required to take appropriate measures. In the case of the Chorro Grande Creek alluvium, a diversion of 30 to 40 gpm of groundwater into Chorro Grande Creek probably would be adequate to maintain flow downstream from the site. If pumping results in a decreased flow from this aquifer into Sespe Creek, additional environmental impacts can occur. There is presently no flow in Sespe Creek about 7% of the time. If observable changes in flow in the ground water system occur, that will eventually deplete the flow of Sespe Creek, the company will be required to halt withdrawal of water from its production wells. As data are collected from the observation well and other existing wells during the course of the mining operation, additional observation wells may be required to adequately outline the effects of pumping.

The tailings will contain leachable phosphate and other soluble materials. The amount of leachate containing undesirable material can range from a few to several 1000's mg/1 dissolved solids. Monitoring of the run-off water quality samples of water from the observation wells will be required.

Large-scale spills of sulfuric acid could occur as the result of a large magnitude earthquake. Over 500,000 gallons of sulfuric acid into Chorro Grande Creek could have considerable effect on the downstream biota, both in causing direct mortality and through impact on the food chain.

Excavating the acid storage site several feet below ground surface and diking it with material in a manner to minimize "slopover" by seiche action and by foaming would minimize the possibility of a surface flow of acid reaching Chorro Grande Creek. The storage excavation will be lined with impermeable, non-reactive material and baffled to prevent "slopover". The chance of acid escaping will be minimized and recovery of the spilled acid will be facilitated.

Sewage will be given secondary treatment unless a higher level of treatment is specified by the Los Angeles Regional Water Quality Control Board. Treated effluent will be ponded and used for irrigation and fire control. Discharges of this effluent to Chorro Grande Creek will have to meet the requirements established by the Regional Water Quality Control Board.

3. Soils

As a result of mining and construction of operating facilities, about 490 acres of soil disturbance will occur over the 50-year life of the proposed operation. Rehabilitation of all disturbed areas outside of working zones will be required. A rehabilitation plan will be developed for approval by the Forest Service. Emphasis in rehabilitation will be placed on establishment of native plant species, thereby minimizing maintenance requirements.

A portion of the lease area, on the western end of the lease (See Map 5), includes a known slide area. Mining operations in this area will be designed to avoid disturbance of the toe of this slide, minimizing the possibility of reactivation.

To avoid disturbance of stream channels, no surface-disturbing activities shall be allowed closer than 250 feet to any major drainage. Any rechanneling or piping of surface waters through the area of the proposed operation shall be done to Forest Service standards.

4. Vegetation

Approximately 490 acres of the lease area will be subject to surface disturbance during the life of the proposal. This constitutes 21% of the lease area. About 220 acres will be occupied by the processing plant, tailings disposal area, spoil piles, roads, and other facilities. About 8 percent of this area, or 21 acres, will be revegetated during the period that the plant is operating. Approximately 270 acres will be disturbed over the lifetime of the project in increments of about 5 - 6 acres per year in the mine quarries. Revegetation of the mine quarries will occur at the same rate.

The goal of the rehabilitation plan will be the establishment of native vegetative species; however, the Forest Service may require "fireproofing" of some areas. This will involve increased use of non-native grasses and legumes.

5. Wildlife

The disturbance of 490 acres of chaparral vegetation and the long-term (50 years) occupation of the area by the mining operation will reduce the habitat available for wildlife species. Revegetation may temporarily increase the carrying capacity of the site for subclimax wildlife species, such as deer. A period of approximately 40 years is required for a chaparral vegetative type to reach maturity. Therefore, within 40-60 years, the revegetated areas can be expected to reach climax. At this time, carrying capacity of the sites would approximate that of the remainder of the lease area and would be substantially less than during the early successional stages.

Changes in stream flow in Chorro Grande Creek and particularly in Sespe Creek can have serious adverse effects upon the trout fishery and upon those organisms in the food chain. Mitigation measures proposed in the watershed section will protect the downstream aquatic ecosystems.

6. Endangered Species

A major potential impact on the endangered California condor can result from above-ground placement of power transmission lines to the processing facility. This impact can be minimized by requiring under-grounding of powerlines where they cross high ridges (Pine Mountain Summit, Ventura River-Sespe Divide). No powerlines will be located near condor nesting, roosting, and flying areas.

Mining activity or blasting near condor nesting or roosting sites can adversely affect the continued survival of the condor. Prohibition of such activity will allow continued use of this portion of the condor's habitat.

Human disturbance factors, both from facility-related activities and increased accessibility to the area, may be of major importance to the condor. If so, the Forest Service will implement a strict program of limited access to areas opened by mine-related activities.

7. Aesthetics

Mining activities or development in areas with a visual absorptive capability rating of moderate (M) and a visual quality objective rating of partial retention (PR), as discussed in Section III, shall be carefully located and designed to blend into vegetative and terrain patterns. The appearance of these facilities shall reflect and repeat the natural qualities common in the landscape in terms of color, texture, form, and line. The gypsum storage area and Quarry No. 1 fall within this combination.

The office facilities, processing plant, and crusher area lie within a low visual absorptive capability area. These areas also lie in a partial retention visual quality objective area. Design, location, and construction of these facilities will be carried out in such a manner that the facilities will not be dominant in the natural landscape. This will require the avoidance of geometric line and form and the reflection and repetition of the qualities of the natural landscape.

8. Noise

There will be a considerable impact from noise, particularly in terms of reduced solitude and disturbance of recreational users. This latter effect can be mitigated by requiring that no blasting be carried out during nighttime hours. Noise resulting from operation of motor-powered equipment can be somewhat mitigated by requiring that all vehicles and other equipment be operated with functioning mufflers. Preclusion of blasting during periods of temperature inversion will help insure that atmospheric attenuation is maximized.

9. Cultural and Historic Values

Although no archaeological sites were discovered during an investigation of the area, there is a high probability of archaeological values occuring in the general area of the proposed lease. A survey of the location of proposed quarries, facilities, and roads shall be conducted prior to reaching a decision on the proposed lease application. The lessee will contract for this survey and will provide the Forest Service with copies of all archaeological reports resulting from the survey. If archaeological values are discovered in the course of the survey or in the course of development, the Forest Service will be notified and protection or salvage of the site will be completed before operation is initiated.

10. Recreation

The proposed development will result in the loss of two rustic trail campsites (Oak, Three Pines), the loss of the Chorro Grande trail, and a reduction in visitor use in the recreation sites along the crest of Pine Mountain. The lessee will be responsible for replacement of the trail and the rustic trail campsites.

11. Fire Control

The proposed operation will result in an increase in the risk of fire occurrence. The lessee will prepare a fire plan, subject to Forest Service approval, that will cover fire prevention, detection, presuppression, and suppression. A 50,000-gallon water tank will be placed on a site designated by the Forest Service, and will be reserved for fire suppression. The million-gallon water storage tank will include a 2-1/2-inch outlet and valve as well as access to the outlet for emergency fire control vehicles.

12. Health and Safety

The proposed operation lies adjacent to the Pine Mountain fault, believed to be an extension of the historically and currently active Big Pine fault. All structures, storage tanks, and facilities will be designed and constructed to resist the lateral and vertical forces generated during seismic shaking (to withstand an earthquake of magnitude 6 on the Richter scale).

B. Stipulations

1. General Provisions

(a) The terms, conditions, requirements, and prohibitions imposed upon the lessee by these stipulations are also imposed upon the lessee's agents, employees, contractors, subcontractors, and their employees. Failure or refusal of the lessee's agents, employees, contractors, subcontractors, or their employees to comply with these stipulations shall be deemed to be the failure or refusal of the lessee.

(b) These stipulations are based on existing knowledge and technology. They may be revised or amended by mutual consent of the United States and the lessee at any time to adjust to changed conditions or to correct an oversight.

(c) In the event two or more agencies have jurisdiction by law over the same area or activity, the lessee shall conform to the more stringent Federal, State, or county laws, rules, or regulations applicable to the lease area.

(d) The lessee shall provide preliminary plans for tentative Forest Service approval, prior to the development of detailed plans concerning the location and design of all buildings, facilities, and earth-disturbing operations. All final plans, or any modification thereof, are to be approved by the Forest Service in writing prior to the implementation of such plans on the ground.

(e) The lessee shall maintain at all times a bond sufficient to insure rehabilitation of all areas disturbed by its mining and related activities. Rehabilitation standards shall be established and approved by the Forest Service in accordance with Stipulation No. 1(d). As a minimum, the bond for areas disturbed shall be in the amount of $2,500 per acre or fraction thereof not rehabilitated to Forest Service standards and for roads the minimum bond shall be $3,000 per mile or fraction thereof not constructed to Forest Service standards. Bonding rates shall be subject to revision annually based on current rehabilitation and construction costs.

(f) No overnight housing accommodations, other than for security purposes, shall be constructed or installed on the lease area.

(g) The lessee shall protect from damage all existing public improvements during all activities and operations conducted pursuant to this lease. As required by the Forest Service, the lessee shall replace any National Forest improvements rendered unsafe or unsuitable for public use.

2. Surface Excavation

(a) Mining activities in and adjacent to the toes of known landslides (slumps and block slides) shall be designed and executed to avoid reactivation of dormant slide masses or acceleration of masses already in motion.

(b) All topsoil removed in the conduct of the lessee's operations shall be stockpiled at locations designated by the Forest Service and shall be used in rehabilitation of disturbed areas in accordance with an approved rehabilitation plan.

(c) Earth disturbances which cause soil movement or water pollution in excess of standards to be established by the Forest Service must be corrected by the lessee within 5 days of notice thereof. Failure to do so in such a time limit will be considered cause to terminate any further earth disturbance, including road building, until the necessary remedial action has been completed.

(d) The use of motorized equipment and blasting shall not be allowed within one and one-half (1-1/2) miles of any known condor nest.

(e) Quarry operations shall be limited to daylight hours.

(f) No surface disturbance of any kind will be allowed within the Reyes Park Recreation Area.

3. Overburden and Tailings

(a) Overburden removed from the first mining quarry shall be placed in areas designated by the Forest Service and shall be terraced, drained, and vegetated in accordance with an erosion control plan approved by the Forest Service. When mining has been completed from the first pit, it shall be backfilled with overburden and ore tailings as provided in the operating plan approved by the Forest Service. Thereafter, each mined-out pit will be backfilled with overburden and/or tailings as soon as possible and at a rate commensurate with stripping, mining, and milling operations. To the fullest extent practicable, mined-out pits will be used for disposal of overburden and tailings. Disposal sites, other than mined-out pits, shall be at locations and subject to conditions prescribed by the Forest Service.

(b) No overburden, tailings, or backfill materials of any kind shall be deposited or allowed to enter Sespe Creek or its tributaries.

4. Rehabilitation

(a) The lessee shall leave reclaimed land in a usable, nonhazardous condition so that soil erosion and water pollution are avoided or minimized. The lessee shall, to the extent practicable, conduct such backfilling, leveling, and grading concurrently with the mining operations. Upon removal of property at termination of the lease, the lessee shall, to the extent practicable, complete the restoration of affected lands to a usable and productive condition, as agreed upon in writing between the lessee and the Forest Service.

(b) The lessee shall submit, for approval by the Forest Service, erosion control and surface rehabilitation plans as part of the mining plan. The initial plan shall be submitted not less than 60 days prior to the start of mining site preparation and updated each year on a mutually agreed upon date. The plan shall include, but not be limited to, detailed information on activities, areas, time schedules, standards, accomplishments, and methods of eliminating or minimizing phosphate development impacts. The lessee shall base erosion control plans and procedures on a storm with a recurrance interval of 50 years. Procedures and plans shall consider flash flood effects and other similar types of material mass movement.

(c) All disturbed areas shall be seeded or planted by the lessee with native plant species in accordance with procedures set forth in the rehabilitation plan. Seeding shall be repeated if attempts to revegetate do not provide a 50% overhead foliar density over 75% of the treated area for grass species and 600 plants/acre for brush species within 3 years of prescribed treatment. Seeding or planting shall be scheduled for each backfilling area so that no more than 40 acres shall be unplanted at any given time. The Forest Service may require any reasonable methods and types of revegetation and may require the lessee to fence areas to assure revegetation.

(d) The lessee shall correct surface disturbance which may induce soil movement or water pollution, or both, whether during or after construction or mining, in accordance with the surface rehabilitation plan.

5. Water Quality

(a) Sewage treatment system for the project will be constructed and maintained to secondary treatment standards unless the Los Angeles Regional Water Quality Control Board establishes discharge requirements in excess of secondary treatment, in which case, the Regional Water Quality Control Board permit requirements will apply.

(b) If, during operations, any liquid or solid pollutants or degrading materials should be discharged, the control, removal, disposal, and cleaning up of such pollutants, wherever found, shall be the responsibility of the lessee. The lessee shall give immediate notice of any pollutant discharge to the Forest Service and to such other Federal and State officials as required by law. Any oral notice shall be confirmed by the lessee in writing as soon as possible, but, in any event, within 3 days.

(c) All effluents discharged within the lease area or upon any other National Forest land under Forest Service special use permit to the lesse, shall conform to the regulations and standards established by the Los Angeles Regional Water Quality Control Board.

(d) The sewage treatment system shall include a holding pond of water suitable for vegetative irrigation around the plant site. This pond shall also serve as a source of water for fire suppression.

(e) No liquid waste shall be deposited or allowed to flow into Sespe Creek or its tributaries.

(f) To preclude damage to Sespe Creek, tailings not disposed of in mined-out pits shall be impounded by a dam constructed in accordance with Forest Service standards. To prevent formation of wind-blown dust, tailings shall be deposited in a damp condition and shall have a pH compatible with the pH at the site of disposal, unless otherwise specified by the Los Angeles Regional Water Quality Control Board.

(g) In accordance with plans approved by the Forest Service, the lessee shall construct water diversion ditches and dikes to control erosion on cuts, fills, and spoil piles. All drainage control structures shall be designed to preclude siltation of Sespe Creek as a consequence of the lessee's operations. As prescribed in plans approved by the Forest Service, natural drainages shall be kept free of obstructions. No cuts or fills shall be made in or adjacent to natural drainages that could cause siltation or accumulation of debris in the drainages.

(h) Mineral recovery processes shall be in a closed system. No liquid material from the production process will be discharged into natural water courses.

(i) Water storage ponds shall be constructed of impermeable materials to prevent percolation.

(j) Natural drainages shall not be blocked. No construction will take place within 250 feet of natural drainages that will result in siltation or accumulation of debris.

(k) On a continuing basis, the lessee shall be responsible for obtaining water quality and quantity monitoring information on both underground and surface run-off waters in the Sespe Creek drainage. This may be accomplished by contract with the United Water Conservation District. Results of such monitoring shall be furnished to the Forest Service quarterly. Any remedial action specified by appropriate regulatory agencies not completed within 10 days of notice thereof may be the basis of suspending operations until such remedial action has been completed.

(l) No water wells, in addition to the existing test well, shall be drilled without prior written consent of the Forest

Service. Embankments shall be revegetated in accordance with specifications outlined in Stipulation 4(c). The lessee shall be responsible for measures designed to preclude excessive soil movement, whether as a result of run-off following natural precipitation or road sprinkling or as a result of dust entering the atmosphere.

(2) Visible evidence of soil movement from the surface, shoulders, or fill slopes of any road, following the application of water thereon in any manner, or dust clouds that rise in excess of 2 feet in connection with a vehicle moving at the rate of 10 MPH or more, shall constitute the criteria for determining that erosion or dust control measures are inadequate. The failure of the lessee to take effective remedial action within 5 days of notice thereof by the Forest Service shall be the basis of suspending use of such road until necessary corrections have been completed.

(3) All entrance roads shall be built to Federal Highway Administration/American Association of State Highway Official (FHWA/AASHO) Standards.

6. Cultural Resources

If during any activity in connection with the lease area, a subsurface or previously unrecognized surface site is discovered, the lessee shall cease excavation in the area affected and notify the Forest Service within 24 hours. Construction work shall not resume until written approval is given by the Forest Service, subject to appropriate steps to protect such artifacts or specimens from damage or destruction.

7. Fire Protection

(a) The lessee shall prepare and implement a fire plan satisfactory to the Forest Service. The plan shall cover prevention, detection, presuppression, and suppression measures, commensurate with the fire hazards associated with the lessee's operations. As a minimum, the lessee shall at all times provide communication facilities, prevention and suppression personnel, fire vehicles and other equipment for the purposes of wildfire suppression and for construction of fuel breaks needed for pre-attack purposes.

(b) The lessee shall be liable for fire control and suppression costs, as well as for the damages, resulting from any fire caused by the lessee, its employees, contractors, subcontractors, or agents which necessitates expenditures by the Forest Service or which affects National Forest resources.

(c) 50,000 gallons of water will be stored in a special tank and be reserved for fire suppression purposes. The tank will be located at a site designated by the Forest Service and fitted with a 5-inch male national standard thread outlet to supply water by gravity.

(d) The one million gallon water supply tank will incorporate a 5-inch outlet and valve, located to provide access for emergency fire fighting vehicles and to supply water by gravity.

8. Transmission Lines

(a) All electric transmission lines shall be designed, constructed, and installed in accordance with the guidelines set forth in "Environmental Criteria for Electric Transmission Systems" (USDI, USDA, 1970), as now or in the future amended.

(b) All telephone and electrical transmission lines serving the project will be located on a route, approved by the Forest Service, to have a minimal impact upon National Forest resources and aesthetic values. Lines will be constructed either above ground or underground, as determined by the Forest Service, pursuant to easements or special use permits.

9. Health and Safety

(a) Special tanks shall be used to insure the safe storage of sulfuric and phosphoric acids or any other liquids hazardous to human safety or the environment. Dikes shall be designed and constructed around such tanks to accommodate and confine the entire volume of such tanks in the event of rupture. All structures, storage tanks, and installations used for containing acids and other chemicals in liquid form shall be designed and constructed to resist the lateral and vertical forces generated during seismic shaking.

Sufficient lime shall be kept readily available at all times so that prompt action can be taken to neutralize any acid spill or leak.

(b) An early warning or monitoring system for all areas where hazardous materials may be stored shall be required and a systematic maintenance program to insure that dikes and dams do not fall into a state of disrepair shall also be required.

10. Recreation and Aesthetics

(a) The lessee shall be responsible for replacing, at his expense, those trail, picnic, and campground locations which are lost or degraded by the mining operations.

(b) To screen the mining operations from view, the lessee shall plant vegetation, of a species and at the spacings specified by the Forest Service, at designated locations adjacent to State Highway 33.

(c) Design plans and specific location of facilities will be submitted for approval to the Forest Service by the applicant. The plans and locations must, insofar as practicable, be compatible with the Forest Service visual resource management objectives.

V. ADVERSE IMPACTS THAT CANNOT BE AVOIDED

A general discussion of significant, unavoidable, adverse impacts follows. The unavoidable impacts cited here are those that will occur despite the mitigation discussed in Section IV.

The identified adverse impacts are both tangible and intangible. The tangible impacts (e.g., soils, vegetation, and wildlife) can be measured and monitored. The impacts upon intangible factors or values (e.g., those relating to land use), though not easily measured, are no less important.

A. Physical Elements of the Environment

1. Air Quality

Vehicles and other mechanized equipment utilized in the mining and processing operations will produce approximately 380 tons of gaseous and particulate emissions annually. Emissions will occur on the site of the proposed operation and along transportation routes. These emissions will cause some increase in pollution levels within the area affected. The overall increase in emissions will not be significant when considered within the context of Ventura County or of the South Coast air basin.

If it is not possible to bring outside power into the site, operation of diesel-powered generators will be necessary. While it is not possible to estimate emissions from diesel generation at this time, an unavoidable increase in gaseous pollutants will occur.

While it is not possible to predict the actual fluoride emissions of this particular processing plant (the Company has indicated there will be no emissions), EPA experience with other plants indicates that these emissions may be on the order of 0.01 to 0.02 pound per ton of P_2O_5. This would indicate that emissions can be expected to range up to a maximum of 1000 pounds of fluorides per year. This can, over the period of the operation, have significant effects upon vegetation and animal populations dependent upon this vegetation. It is not known whether complete control is possible.

The most significant impact on air quality resulting from the proposed operation may be the increase in fugitive dust. The quarrying operation and ore transport will result in increased particulate emissions. While dust control measures can reduce emissions along unpaved mine haulage and service roads, control of dust from the blasting, ripping and ore loading operations will be more difficult. Some increase in ambient particulate levels is unavoidable.

2. Water

Phosphorous will constitute less than about 0.5 percent of the tailings. Leaching of phosphorous, in the form of PO_4, could increase the possibility of algal blooms occurring downstream. The probability of some increase in downstream PO_4 levels cannot be discounted.

The proposed operation lies adjacent to the Pine Mountain fault, a branch of the Big Pine fault. While records indicate that no major earthquakes (magnitude 4.0+) have occurred along these faults since 1934, the general area is seismically active. In the entire southern California region the probability for earthquakes of a magnitude 6.0 or greater occurring has been estimated at about 0.003 per year per 1,000 KM^2. Therefore, while actual probabilities cannot be determined, there is a very real possibility of a large magnitude earthquake occurring during the 50-year operating life of the proposal. In this event storage tanks and retaining dike structures could be ruptured and about 1.5 acre feet of sulfuric acid could be discharged into Chorro Grande Creek, eventually reaching Sespe Creek. Destruction of organisms in the aquatic ecosystems of these streams would certainly result. Since the acid would tend to be neutralized through a reaction with the calcareous soils, the resultant change in pH of the streamflow would be short-term. The impact on the biota and animal populations would also be temporary.

3. Soils

Over 490 acres will be disturbed during the operating life of the project. Plant facilities will occupy 75 acres, another 142 acres will be occupied by the tailings disposal area and 276 acres will be occupied by the mined quarries. Of the area occupied by plant facilities and the tailings disposal area, approximately 8% will be revegetated during a 50-year period. The quarries themselves will be revegetated at the rate of about 5-6 acres per year. The long-term disturbance of vegetation on areas occupied by plant facilities cannot be avoided.

Some increase of sedimentation will inevitably result from construction of the proposed mine access road. While cut and fill slopes will be revegetated and erosion control measures employed, increased sedimentation cannot be entirely avoided.

B. Living Environmental Components

1. Vegetation

Disturbance of the native chaparral vegetative community will occur on over 490 acres. It will be possible to reestablish vegetation on approximately 315 acres (Figure 34).

Figure 34

Vegetation Disturbed by Proposed Project (Acres)

Area	Site Disturbance	Revegetated Area	Area Disturbed for 50-year Period
Main Access Road	40.0	10.0	30.0
Area A (Office, etc.)	5.7	0.7	5.0
Area B (Processing Plant)	4.5	0.5	4.0
Area C (Crushing Plant)	7.5	0.5	7.0
Area D (Gyp Storage)	8.8	0.5	8.3
Area E (Sewage)	0.74	0.3	0.5
Area F (Tailings Disposal)	120.0	18.0	102.0
Spoil Pile (North)	8.8	8.8	0
Spoil Pile (South)	13.0	13.0	0
Service Roads	5.0	0	5.0
TOTAL	214.1	52.3	161.8

The long-term removal of vegetation on 162 acres represents an unavoidable impact of the proposed project.

Exclusive of the mine quarries, about one-third of the vegetation disturbed by plant facilities and operations will lie on south- and west-facing slopes. Since these slopes are receptors of intense solar radiation, and therefore are subject to greatest drying stress, revegetation of these sites is more difficult than on north- and east-facing slopes.

2. Wildlife

The loss of about 162 acres of wildlife habitat, occupied by buildings, roads and other facilities over the 50-year life of the proposal, cannot be mitigated. This should have no significant impact upon population levels, considering the habitat available in the remainder of the Pine Mountain area. Some disturbance of wildlife by mining and processing activities will also occur, expanding the area of unuseable habitat. This too, however, should not have a significant effect on wildlife population levels.

As discussed above, discharges of sulfuric acid into Chorro Grande Creek could temporarily reduce fish population levels. Despite all mitigation, the possibility of such a spill occurring cannot be discounted. A temporary reduction in fish population levels would occur.

3. Endangered species

One condor nest site which has been inactive for 10 years and roosting habitat and bathing/drinking pool within 1-3/4 miles of the lease area might be rendered unusable during the life of the project, depending upon noise and activity levels. Any risk or threat resulting to the condor from the proposed action will add to the cumulative factors already present that place the species in a precarious survival situation.

C. Human Values and Land Use

1. Aesthetics

The introduction of an industrial facility into the southern California chaparral community will inevitably impact aesthetic values. Mitigation cannot completely alleviate the aesthetic impact, particularly in those areas rated R and PR, having a visual absorptive capability of Low. Portions of the access road, the processing plant, office and parking areas, and part of the crusher facility lie within this classification. A degradation of visual aesthetic quality will inevitably result from implementation of the proposal. Portions of the mine quarries will also be highly visible and disruptive. The impacts of the quarrying operation cannot be completely mitigated.

2. Noise

Noise attributable to equipment operation can be mitigated through regulation of the type of muffling equipment used and the period of operation. However, unmitigatable impacts will still occur, particularly at the Pine Mountain recreation sites. Noise levels may be about

10 - 20 decibels above natural background levels and will approximate the noise generated by aircraft passing overhead. Some increase in noise levels in Sespe Canyon and along Highway 33 is possible; however, these will probably be less than along the crest of Pine Mountain. Blasting will result in momentary increases in noise levels of between 105 to 130 decibels, measured at the recreation sites and rustic trail sites in the Pine Mountain area. These levels approach those associated with sonic booms. The overall effect of blasting will be equivalent to three additional sonic booms per week. At a distance of 10-20 miles, not considering the effect of terrain shielding, blasting will increase noise levels to approximately 90 decibels. The effects of these increases in noise levels, particularly from blasting, will be to reduce the recreational value of the area (solitude) and possibly reduce wildlife use of the area. In the case of the condor, this reduction is of minimal significance since condors rarely utilize the area at present. Other species may be affected by noise, but the increased noise level should have no effect upon species populations.

3. Cultural and Historic Values

The archaeological investigation conducted by the Forest Service did not result in any sites being identified in the proposed lease area. However, the potential for archaeological values is high. The requirement that a detailed site survey be completed prior to reaching a decision on the lease application should result in protection of archaeological values in the area. The value of archaeological resources in place, however, is considered higher than that of salvaged archaeological resources. This is because, through salvage, the historical and cultural context of the site is often lost. The value of the site to future generations of archaeologists who may have better information is destroyed.

4. Recreation

The proposal will result in the loss of 4,000 days of visitor use in the recreation sites and rustic trail sites in the vicinity. The company will be required to replace the Three Pines and Oak rustic trail sites. However, even assuming that the loss of 3300 visitor days will be completely mitigated by relocation of these rustic trail sites, the proposal will result in loss of 700 visitor days of camping use. The mineral development will result in the loss of 1150 days of visitor use on trails in the vicinity, of which 750 visitor days will be lost on the Chorro Grande Trail. Almost 4000 hunter days will be lost.

Sespe Creek is a very high-value native trout fishery. The probability that contamination of the stream by spills or through leaching of nutrients and other materials from tailings areas will occur over the operating life of the project is great. This could lead to a reduction in the recreational value of the fishery. This should be short-term in its effects.

In addition to the quantitative loss in recreation values, the proposed developments of an industrial facility in the Pine Mountain area will cause a qualitative reduction in recreational values. Solitude, one of the prime recreational values, will be lost over the entire Pine Mountain area. Industrial development is incompatible with a wildland recreation experience and will result in environmental impacts that cannot be completely mitigated. Recreational values at the Wheeler Gorge Campground will be lessened by the proposed operation. The increased truck traffic on Highway 33 will reduce the value of the campsites closest to the highway. At this campground there are 10 sites within a horizontal distance of 50 feet of the highway. Increased noise and increased safety hazards due to heavy truck traffic will reduce the value of these campsites to recreationists.

5. Land Use

The proposed activity will result in the loss of livestock grazing use in the area. Because of the limited size of the grazing operation (42 AUM's on federal land), this impact would have fairly narrow effects. Only one operator will be affected. His use of the lease area for a 3-1/2 month period each year would be lost.

Relocation of the existing 20-inch Atlantic Richfield Company gas pipeline in the western portion of the lease area may be necessary if a mine quarry is developed on this portion of the lease. Since the location of future quarries on the extremities of the lease is uncertain at this time, it is not possible to ascertain the probability of relocation.

The proposed development introduces an industrial use into the north half of Ventura County. It will run counter to the efforts of

Ventura County to limit development in the north half. Since the Ventura County general plan represents a consensus of the citizens in Ventura County, the proposed mineral development will run counter to the ideals and aspirations of the local citizens. It may set an adverse precedent, thereby frustrating attainment of the county's goals. This impact cannot be mitigated.

National Forest plans, both the current multiple-use plan and long-range management plans being developed, do not contemplate the type of intensive development proposed. The multiple-use plan gives priority to protection of watershed values, maintenance of aesthetic quality, and enhancement of recreational opportunities. The proposed development runs counter to attainment of the latter two goals and will have some negative effect on watershed protection.

6. Transportation

Traffic counts indicate that current average daily traffic in the portion of Highway 33 between Chorro Grande Creek and Ozena is 350 vehicles. The proposed operation would increase traffic by 65 vehicles per day on this portion of the highway. This represents an increase of 19%. During the spring of the year (March, April and May), the proposed operation will increase traffic by a total of 96 vehicles per day, or an increase of 21%. While, even with these increases, traffic would only be about 18% of rated capacity, the proposed operation will increase road maintenance costs and have an unquantifiable impact on traffic safety.

Hauling of 24 loads of acid daily over the segment between Chorro Grande Creek and Ozena would increase the probability of acid spills and present a more severe safety hazard. These impacts cannot be entirely mitigated.

VI. RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF THE ENVIRONMENT AND MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

The proposed mining operation, based on estimates of proven reserves (reserves established by core drilling and trenching), will continue for approximately 40 years. The company's plans for this operation are based on a 50-year planning period. Including probable and possible reserves, the operation could be extended an additional 120 years at the projected rate of production. If all known and inferred reserves prove economically developable, operations would involve a total of 170 years.

In defining the terms "short-term" and "long-term" we base the definition on the operating life of the proposal. Those impacts which extend beyond 50 years are considered to have an impact on the long-term environmental productivity of the lease area. The short-term use of the area involves extraction and processing of 30 million tons of phosphate ore (based on proven reserves). An additional 70 million tons could be mined if inferred reserves prove operable. Even if mining of the total proven and inferred reserves is feasible, however, leading to extraction of 100 million tons of phosphate ore, the life of the operation would not necessarily be extended to 170 years. The present proposed scale of the operation is predicated primarily upon an estimate of the ability of the California market to absorb the plant's production. If significant additional reserves are proven, it is likely that the company would consider expansion of the market area. If this occurs, a change in the rate of mineral extraction and scale of the processing facility would be as likely as prolongation of the operation life of the project.

The variables affecting the operating life of the proposed mine include the physical extent of the Pine Mountain phosphate reserves, production costs in relation to these reserves, the price of phosphate in the Pine Mountain market area in relation to prices of phosphate from other sources, and the price of phosphate in the Pine Mountain area in relation to the marginal cost of production. Our ability to project the parameters of the supply and demand schedules of the market for the Pine Mountain phosphate is limited in the short-term; long-term projections are essentially meaningless since we do not have useful predictions of changes in mining and processing technology and phosphate demand. The best data presently available indicates that a 50-year life is most probable. It should be recognized, however, that this is an approximation and that the operating life of the proposal could extend up to and even beyond 170 years.

1. Air Quality

The operation of vehicles and mechanized equipment will increase gaseous emissions to approximately 380 tons annually. The area of impact of these emissions includes the lease area and the travel routes and loading points. These emissions will not have a significant effect in the short-term and there should be no carryover effect on long-term productivity.

The possible emission of fluorines from the acidulation process could, through changes in species composition and plant density, exert an influence on the structure of the vegetative community for a period considerably in excess of 50 years. Once species are eliminated from the community or suffer a reduction in their ability to compete, relative to the competitive ability of other species, permanent changes in the community may result. Reductions in plant density can lead to increased erosion that will lessen the productive capacity of the community.

The mining operation and travel along unsurfaced service roads in the area will result in an increase in particulates in the short-term. Fugitive dust emissions (particulates) will result from the mining operation and from ore transport and administrative use of mine haulage and service roads. Sprinkling, oiling, or other means of dust control shall be required on roads and trails where necessary.

2. Water

The proposed operation will utilize approximately 800 acre feet of water annually from the Monterey Sandstone Formation (Godwin Syncline). It is presently estimated that with an average annual precipitation of 21 inches, recharge of aquifer may be equal to this rate of withdrawal. Until actual observations are made of the effect of withdrawal on the aquifer, however, this conclusion must be tentative. One of the mitigation measures proposed is the drilling of observation wells into the aquifer. If the rate of withdrawal exceeds the rate of recharge, ground water mining could occur. Water in the aquifer presently seeps into the intermittent streams throughout the area but is not a primary source of surface streamflow or, to the best of our knowledge, of subsurface flow in the alluvium. Therefore, even if ground water mining did occur in the Monterey Sandstone Formation, the effect on vegetation and streamflow is expected to be minimal. Withdrawal of ground water at a rate greater than recharge would, however, preclude utilization of this ground water for future uses.

If water is withdrawn from the Sespe Formation and the withdrawals exceed the rate of recharge, a decrease in streamflow in the upper portions in Sespe Creek could result. Withdrawal of water from the Sespe Formation aquifer is not contemplated and is prohibited by a proposed lease stipulation (discussed in the mitigation section). An observation well will be drilled into the Sespe Formation to insure that withdrawal of ground water from the Godwin Syncline will not cause any decrease in flow of the Sespe aquifer.

Sulfuric acid spills resulting from catastrophic events such as major earthquakes would have a short-term adverse effect upon aquatic populations and upon vegetation in the area surrounding the storage tanks. The probability that neutralization of acid spills by the naturally calcareous soils would occur, leads to a conclusion that this effect would be short-term and that there will be no probable effect upon the long-term environmental productivity of the lease area. The actual loss of aquatic biota would be irreversible, but short-term.

Leaching of nutrients from mine tailings is quite likely. The addition of these nutrients to the Sespe Creek aquatic ecosystem, particularly during low flow periods, can cause an increase in eutrophication of the stream. The two variables that are presently not known are the ability of the stream to absorb inputs of nutrients and whether nutrients in soluble form will be definitely leached from the tailings.

3. Soils

Plant facilities will occupy 75 acres over the 50-year life of the proposed operation. The soils on these 75 acres will be covered with structures and roads. They will not be revegetated, at least until the operation closeout. Rehabilitation of these sites after the operation closeout, will depend upon whether the facilities are removed or remain in place. There is a possibility that at least the main access road will be left in place. It is possible, therefore, to conclude that there will be a long-term reduction in biological productivity of these 75 acres.

The 120-acre tailings disposal area and the two spoil piles will be revegetated and irrigated after the first 8 to 10 years of plant operation. The tailings, in particular, will be deficient in nitrogen, phosphorous and potassium (since the purpose of the operation is the extraction of phosphorous, a nutrient deficiency can be expected). While irrigation may replace some of the nutrients, it is probable that some reduction in site productivity will occur over a period of forty to fifty years. As the organic content of the soils increases with the increased cycling of plant detritus, the nutrient imbalance will be lessened. However, it can be assumed that some decrease in site productivity will occur.

4. Vegetation

The removal of soils on a total of 214 acres in the area, exclusive of the mine quarries, will cause a temporary reduction in biological productivity. A total of 53 acres will be revegetated during the course of the operation. The long-term productivity of 162 acres will be lessened. On the total area, vegetation will be disturbed on over 490 acres. Approximately 315 acres will be revegetated. Following revegetation, vegetative productivity will increase temporarily. As the vegetation trends toward climax, productivity will decrease to a level approximating that of the surrounding climax chaparral vegetation.

As indicated in the discussion of air quality, continued fumigations of fluorides could result in reductions in vegetative density and changes in species composition. Conifers would be the most susceptible.

5. Wildlife and Fish

The establishment of subclimax vegetation will tend to increase the productivity of habitat for those species associated with subclimax communities. However, the acreage involved is so slight that there should be no discernable effect upon these animal populations. On the other hand, human intrusions and occupation of the site by an industrial facility will, in the short-term, reduce the habitat available for these species. At the conclusion of the operating period, these disturbance factors should be eliminated.

Sedimentation of Sespe Creek and the mouths of its tributaries may degrade spawning area. This could have a long-term impact upon the productivity of the Sespe Creek rainbow trout fishery.

Damage to Sespe Creek could result from increased sedimentation, the addition of nutrients and the possible consequent increase in Biological Oxygen Demand (B.O.D.), and spills of sulfuric acid. The probability is high that some or all of these events will occur sometime during the life of the operation. Some loss in productivity of the aquatic ecosystem would occur. The extent of the loss in productivity is dependent upon the number and combination of events. With the exception of sedimentation, none of these events should have effects in the period after project close-out.

6. Endangered Species

Construction of electric transmission or distribution lines, could have an adverse impact upon the future survival of the California condor. This would occur if lines are constructed across ridge tops (Ventura River-Sespe Creek Divide, west of Nordhoff Peak) utilized by the condors. Additionally powerline construction through areas (northwest or east of the plant site) could disrupt nesting and roosting condors. The locations of these routes cannot be defined at this time and will have to be considered subsequently when developing the operating plan. However, any impact could affect the survival of the condor.

7. Aesthetics

The mine access road, processing plant, and some of the mine quarries will be visually disruptive in the short-term and, since they occupy areas least capable of absorbing visual impacts, will have an adverse impact upon visual aesthetics after plant close-out. The introduction of dissonant form, line, texture and color into the area will reduce the overall aesthetic quality of the Pine Mountain region.

8. Recreation

The developed recreation sites in the Pine Mountain area presently support between 22,000 and 25,000 visitor days of use annually. The proposed operation will result in a short-term decrease of 4,000 visitor days use. Some of the adverse impacts upon recreation, such as noise, are short-term and should cease with termination of the operation. The physical destruction of rustic trail sites at Three Pines and Oak RTC will, however, result in an estimated loss of 3,000 visitor days of use.

Replacement of these sites is included as a mitigation measure. However, it is uncertain that the new sites would contain sufficient attraction to replace the lost visitor use. Over a 50-year period 85,000 to 100,000 visitor days of recreation use could be lost or displaced to other areas.

The Ojai District currently provides an estimated 29,500 angler-days of fishing annually and use was increasing at an annual rate of 28 percent. Any loss of the Sespe Creek fishery, even a short-term loss, would have a significant effect on this recreational value. Short-term loss of fisheries values are probable during the life of the proposed operation.

9. Land Use

If the proposed development acts as a stimulus to other types of development in the north half of Ventura County, the effects will be felt long after the phosphate operation closes out. The wild land character of the area will be substantially committed to a more intensive type of development than is contemplated in the present general plan.

Opportunities for multiple-use management of the area by the Forest Service will be severely limited. In particular, inclusion of portions of the area within roadless management zones or designated wilderness will be precluded.

VII. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

The extraction of between 30 and 100 million tons of phosphate ore represents an irreversible commitment of this resource. The phosphate will not be available to meet future market demands that might develop after 2025. The relationship of this ore deposit to phosphate reserves in the Western United States and world phosphate reserves is unclear. The future role of substitutes for phosphate ore (e.g. recovery of phosphates from sewage treatment) is also not known; therefore the impacts of committing the phosphate resource to present production cannot be specified.

Some increase in soil erosion resulting from construction of access roads, tailings-pond dikes, and excavation of the mine quarries is inevitable. Soil loss through this erosion process represents an irretrievable commitment of the soil resource. In the context of total natural erosion presently occurring in the Upper Sespe Creek basin, however, this erosion is inconsequential.

The loss of an area possessing possible roadless area or wilderness qualities is essentially an irreversible impact. It is irreversible in the sense that the man-made changes to the landscape are reversible only when considered on the scale of geologic time.

The intrusion of an industrial use into the northern half of Ventura County represents an irreversible impact. It will expose the county to continued development pressure and represents a use incompatible with the present general plan. If increased development occurs as a result of this precedent, the county planning options will be limited and the trend toward increased development will not be susceptible to alteration.

The potential for irreversible decline in the condor population is clearly associated with the habitat modification that would be caused by this proposal.

VIII. ALTERNATIVES TO THE PROPOSED ACTION

As discussed in the description of the proposed action (Section I, D.), approximately 60% of the land applied for in preference right phosphate lease R-04843 is overlain by lode and placer gypsum mining claims. There are 14 lode claims and 11 placer claims for a total of 25 mining claims. (Gypsum is a locatable mineral, under the 1872 Mining Laws.) All of these claims are owned by the applicant. If the government desires to contest these claims, a validity determination must be made. The applicant is presumed to have the right to mine the gypsum unless the government decides to contest the claims. If, however, a validity determination results in a finding that the gypsum claims are invalid, then mining of the gypsum could not occur.

A. Deny The Lease Application (No Action)

Section 9 of the Mineral Leasing Act, as amended [30 U.S.C. 211 (b)] provides:

> Where prospecting or exploratory work is necessary to determine the existence or workability of phosphate deposits in any unclaimed, undeveloped, area, the Secretary of the Interior is authorized to issue, to any applicant qualified under this act, a prospecting permit which shall give the exclusive right to prospect for phosphate deposits, including associated minerals, for a period of two years, for not more than two thousand five hundred and sixty acres;

> and if prior to the expiration of the permit the permittee shows to the Secretary that valuable deposits of phosphate have been discovered within the area covered by his permit, the permittee shall be entitled to a lease for any or all of the land embraced in the prospecting permit.

The Department has recently issued regulations to define "Valuable Deposit" (See Appendix C). If the lease applicant fails to show that he discovered a valuable deposit of phosphate during the term of the permit, the lease application will be denied. However, the Secretary must make a decision whether to lease or not.

If the Secretary of the Interior denies the lease application, alternate sources would have to be developed to make up the deficit or consumption would have to be reduced. The environmental consequences of obtaining alternative sources cannot be assessed unless these sources can be identified and the environmental impacts of mining in those specific areas evaluated.

The outlook for eventual shortages of phosphate suggests that a decision to not authorize mining now may merely defer to a future generation the question of whether the deposits should be developed at the expense of the then existing Pine Mountain environment.

If the lease applicant shows that a valuable deposit of phosphate was discovered during the term of the prospecting permit but a decision is made to deny the lease application, special legislation may be necessary to provide compensation for the applicants.

Compensation for any earned rights could either be the payment of cash, or a mineral exchange in the form of mining rights in other Federal mineral deposits, phosphates or others.

Cash Payment: A cash settlement for the preference right lease would be payment to the permittee for relinquishing its right to mine the lands presently under application. Authorizing legislation may be required. Cash payment for the option delays the time in which the National Forest might be mined. The purchase of these options by the Federal Government does not, in and of itself, guarantee that these same lands would not be mined in the future. The environmental impacts of cash payment cannot be assessed without specific information as to the mining company's eventual use of the funds.

Mineral Exchange: A mineral exchange could be accomplished by amending existing regulations. This alternative would involve issuance of non-competitive leases for valuable minerals on other public lands in lieu of the right to leases on the Los Padres National Forest.

There appears to be no legal objection to the issuance of a new regulation which would provide that a preference right permittee may, upon surrender of that preference right, receive in exchange a lease on other lands if the exchange is in the public interest.

1. Gypsum Claims Invalid (Preference right lease application denied)

The preference right lease application would not be issued, the area would be proposed for withdrawal from mineral entry under the

1872 Mining Laws and a validity determination would be made on the existing gypsum mining claims. If a determination is made that the claims are invalid, development of the gypsum claims would not take place.

Environmental Impact

The environment would remain essentially in its present state as modified by projected changes in land use and development patterns. Selection of this alternative would result in no environmental impact.

2. Gypsum Claims Valid (Preference right lease application denied)

The gypsum claims would be presumed valid or be declared valid as a result of a validity determination. The preference right lease application would be denied. Mining of the gypsum could proceed; mining of phosphate would not. The gypsum lies in a bed that averages 20 to 25 feet in thickness, dips downward at an angle of 35°, and is overlain by continental sediments and in an approximately 20-foot layer of alluvium. Economic factors would determine the amount of gypsum that could be considered strippable.

Assuming that the mined gypsum would be used as an agricultural soil amendment (as is the gypsum to be removed under the proposal), no on-site processing would be required. Approximately 32,000 tons of gypsum would be shipped annually, during the months of April, May and June. Truck traffic would be approximately 134 round trips per day, three-quarters going north toward the San Joaquin Valley and one-quarter south to the Southern California market area.

Environmental Impacts

Impacts on air quality would be essentially the same as those described for the proposed action. Approximately the same amount of blasting, ripping, ore loading, and ore transport would be required. Since transportation requirements would be approximately 70 round trips per day less than for the proposed phosphate operation, gaseous emissions should also be less.

Ground water resources would not be required for the production of gypsum. Therefore, there would be no impact upon the Sespe and Monterey Formation aquifers or on Sespe Creek and its tributaries. Construction of an access road would still be required and increased sedimentation would occur as a result of road construction and operation of mine quarries. No other impacts on water quality would be anticipated. In mining gypsum, soil disturbance would be considerably less than in the proposed phosphate operation. Soil disturbance would be limited to that resulting from access road construction, development and operation of the loading area, possible stockpiles, and the mined quarries. A total of approximately 300 acres of soil surface would be exposed over the life of the operation. Mine excavations at the toes of existing slide areas would increase the danger of slides as is the case with the proposed phosphate operation.

Effects on vegetation, wildlife and fish would be essentially the same as those discussed in the proposed action. An exception would be that those impacts resulting from a decrease in surface water flow or resulting from a sulfuric acid spill would not take place. Impacts on the California condor would be essentially the same as those discussed in the proposed action section.

The impacts on aesthetics would be less than those described for the proposed action. There would be no plant facilities, but the access road and some of the mine quarries would be visually disruptive.

Noise impacts would be essentially identical to those discussed under the proposed action. Extraction of the gypsum would require blasting and ripping. Since these were the predominant noise-causing activities, there would be no difference between the two operations.

Recreation losses of about 4,000 visitor-days in use of recreation sites and an additional 1,150 visitor-days loss in use of trails would occur. A loss of 3,750 hunter days use would be anticipated.

The impacts on land use would be similar to those described for the proposed action. While the intensity of development would be less, the precedent-setting nature of the mining operation would be similar in effect.

B. Delay Action

This alternative would entail delaying a decision on the preference right lease application until additional information could be obtained on archaeological values, and the effect of pumping on the Godwin Syncline and Sespe Formation aquifers. It differs from the "Take No Action" alternative in that the decision would be delayed until the needed information is obtained. The Mineral Leasing Act does not require the Secretary of the Interior to make the decision to issue or not issue the leases within any specific time period, although the decision cannot be delayed so long as to amount to a de facto taking.

Environmental Impacts

The environmental impacts of this alternative would be identical to those discussed above for the "Take No Action" alternative. If the gypsum claims were invalid (or if gypsum mining did not occur) there would be no environmental impacts during the period of delay. If gypsum mining were to proceed, the environmental impacts would be the same as those discussed above in Section VIII-A.

C. Issue Lease, But Don't Allow the Processing Plant to be Located on Federal Land

The preference right lease would be issued with a stipulation requiring that the processing plant be located off Federal land. The mining operation would still take place, as described in the discussion of the proposed action. Transport of the ore from the mine to the processing plant would require approximately 140 truck trips per day (considering both loaded and empty trucks). There are an infinite number of possible locations for the processing plant, but two - Cuyama Valley and Ventura - were considered the most favorable in terms of transportation distances.

Environmental Impacts

Those impacts associated with the processing plant would be transferred to the new plant location. Power requirements, water requirements of 242 gpm, and storage of acid would not be required at the mine site. Plant waste, in particular tailings, would be deposited off the lease area.

Impacts caused by mining and shipping activities would remain essentially unchanged. The effects of mining on air quality, water quality, soils, vegetation, wildlife, noise, recreation, aesthetics and land use would be of about the same magnitude as if the processing plant were located on-site. Since there would be no on-site water requirements, pumpage of water from the Godwin Syncline would not be required.

The major changes in impact will be from reduction in power requirements, a reduction in the quantity of water required, and elimination of the need to transport and store caustic materials on-site and the elimination of the need for a tailings disposal area on the leased site.

All of these impacts, however, could occur at the alternative plant locations. There is no way to adequately assess the impacts unless a specific location is identified. However, a location in the Cuyama Valley could be expected to have lesser impacts than one in the Ventura area, with the possible exception of impacts on ground water supplies. The impacts of ore transportation would be less since traffic loads are less on the portions of Highway 33 to the north of Chorro Grande Creek.

The impacts on land use, however, would be greater since the Ventura area is already industrialized, while the Cuyama Valley area is relatively free of intensive development.

D. Lease with Delayed Authorization to Mine

This alternative involves the issuance of the lease under conditions which would postpone authorization of mining until some future date.

It is based on the assumption that known reserves of phosphate in the U.S. are not adequate to meet probable future domestic needs and that it is likely that a national emergency will occur which would alter relative values of various natural resources and compel the development of this reserve. Legislation will be required to implement this alternative unless the applicant agrees to the delay.

The alternative would permit preservation of the environmental amenities, resource uses, and productivity of the Pine Mountain ecosystem, until the phosphate resources were urgently needed or other developments occurred.

The alternative would (1) allow more time for the development of new and better techniques for reclamation of the mined area, (2) reserve the deposits for future emergency needs, and (3) maintain continued production of the renewable resources in the area for a longer period.

The delay period would be based on (1) determination of overriding needs for phosphate due to a domestic crisis for which no other alternatives are available and/or (2) the industry's ability to demonstrate acceptable methods of reclamation.

The delay in mining these deposits would allow more time for development of more efficient techniques for increasing yield of phosphate and other minerals from the ore; development of more efficient techniques of reclamation. Withholding the federally owned phosphate deposit from the market would, in effect, maintain a reserve for future use.

Environmental Impacts

The environmental impacts of this alternative would, in the short-term, be similar to the no leasing alternative. When mining is eventually authorized, the long-term impacts would approximate those described in the body of the statement except as mitigated by the potential developments mentioned above.

E. Alternate Sources or Reduction of the Use of Phosphate

1. Consumption of phosphate has been reduced in detergents and other domestic uses and further reduction in demand implies a reduction in the quantity of available fertilizer. This could have serious consequences by reducing agricultural products at a time when world demand for those products is increasing. An educational program to prescribe appropriate use of fertilizers in the production of farm products could reduce consumption of phosphates as fertilizer.

2. Reduce Exports and Reallocate Existing Supplies

This would reduce the annual rate of consumption and extend the life span of the existing reserves in the United States. It would postpone for a period of time the demand to mine this area. When mined, the environmental impacts would be similar to those described in the statement.

3. Increase Production from Existing Sources or Import Phosphates

In order to meet increased demand, one could increase production from existing sources or import phosphate. Environmental impacts would depend on the circumstances, such as the area mined. Importing phosphate would adversely affect the United States' balance of payments.

4. Development of Offshore Deposits

Offshore mines have been tried with unsuccessful results. Mining involves depths of approximately 800 feet and the costs are at present prohibitive. The costs are far in excess of 250 percent of the present market price.

5. Phosphate Recycling

This alternative comtemplates the return of phosphate by using animal and human wastes as a fertilizer. The action would reclaim phosphate from reprocessed wastes. Calculations made by the State of New York[1] indicate that from 500,000 to 1,000,000 short tons of phosphate could be recovered from United States secondary sewage treatment plants. This represents approximately 1.5 to 3 percent of U.S. consumption assuming 50 to 100 percent recovery, respectively.

[1] Phosphorous in Waste-water by Leo J. Hetling and Italo G. Carcich, New York State, Department of Environmental Conservation, Technical Paper No. 22, June 1972.

Some municipalities have attempted to utlize these waste products. If a process can be developed to a point of profitability, it could result in a reduction of the demands for phosphate.

6. Substitute Sources

Acid leaching and etching fluids contain phosphate. However, the recovery of phosphates from spent electroplating or polishing and acid leaching solutions is neither economical nor technically feasible at present. The amount recovered would be insignificant and of small value.

Basic slag and guano can also be written off as a substitute. Phosphorous bearing ores are avoided in both open hearth and basic oxygen furnaces, therefore, phosphorous bearing slags are not available. Guano deposits in South America have, for the most part, been depleted.

F. Legislation

Two bills (S. 1040, HR 5442) were introduced in the 93rd Congress, which would govern the disposition of minerals of public lands. Discussion drafts of proposed legislation are currently under consideration in the Department of the Interior. It is expected that the proposed legislation will be somewhat along the lines of the previously submitted bills, insofar as they pertained to minerals that are currently classified as leasable. Legislation introduced in the 93rd Congress required consideration of environmental factors before reaching a decision on leasing minerals.

IX. CONSULTATION AND COORDINATION WITH OTHERS

A. Consultation and Coordination in the Development of the Proposal and in the Preparation of the Draft Environmental Statement.

The following federal, state, and local governmental agencies were contacted in the preparation of the draft environmental statement.

1. Federal Agencies:

Department of Agriculture
  Forest Service
  Division of Plant Science Research

Department of Commerce
  National Oceanic and Atmospheric Administration

Department of Defense
  Corps of Engineers

Environmental Protection Agency

Department of Health, Education, and Welfare

Department of the Interior
  Bureau of Mines
  Geological Survey
  Fish and Wildlife Service
  Bureau of Outdoor Recreation

Department of Transportation
  National Transportation Safety Board

2. State Agencies:

Office of the Governor, Office of Planning and Research (State Clearinghouse)

The Resources Agency

California Air Resources Board

Department of Water Resources

CALTRANS

3. Local Agencies:

Southern California Association of Governments
The Ventura County Air Pollution Control District

B. Public Hearings

Hearings were held on July 27 and 28, 1971, in Ventura, California. The purpose of the hearing was to develop factual information concerning the possible effects of the proposed mining and processing operation upon the environment. Approximately 68 witnesses appeared at the hearing. Two petitions containing 8,732 signatures were submitted in opposition to the proposed phosphate mining. The hearing transcript is on file in the Washington Office of the Bureau of Land Management.

The hearings corroborated the strong local opposition to the proposed mining operation. Local legislative representatives submitted statements in opposition to the proposal and 99% of the mail received by the Bureau of Land Management indicated opposition to the proposed operation. Issues raised at these hearings included the impact of the operation on the California condor, impacts upon recreation use, impacts upon air and water quality, impacts upon local transportation systems (i.e., Highway 33), impacts upon the natural landscape. Some issues raised are beyond the scope of this environmental impact statement. Included in this category are the need for additional phosphate production, and whether a valuable deposit of phosphate within the meaning of the Mineral Leasing Act of 1920 has been established.

C. Comments on the Draft Environmental Statement

Comments were requested from Federal, state, and local governmental agencies. In addition to the agency review process, numerous copies were distributed to individuals as a result of public requests. Numerous comments were received from individuals, most of which were addressed to the substance of the leasing proposal. Copies were also distributed at the public hearings on July 27 and 28, 1971. Comments were received from the following agencies:

1. Federal Agencies:

   U.S. Department of Agriculture
     Forest Service

   Environmental Protection Agency

   Department of Defense
     Department of the Army, Corps of Engineers

   Department of the Interior
     Geological Survey
     Bureau of Outdoor Recreation

   Department of Transportation
     National Transportation Safety Board

2. State Agencies:

   State Clearinghouse (transmittal of comments from Resources Agency)

   Environmental Quality Study Council

3. Local Agencies:

   Ventura County Air Pollution Control District

Comments were received from the following Federal, state, and local agencies. In the following pages, the response to each comment is included on a page following the agency comment.

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
WASHINGTON, D.C. 20250

IN REPLY REFER TO

1940

September 24, 1971

Mr. Irving Senzel, Assistant Director
U.S. Department of the Interior
Bureau of Land Management
Washington, D.C. 20240

Dear Mr. Senzel:

Thank you for the opportunity to review and comment on the Draft Environmental Statement for Preference Right Phosphate Lease Application within the Los Padres National Forest. We have a strong and direct interest in this application because it is within the Los Padres National Forest, California. Because of this, we must be satisfied that all elements of the project have been thoroughly examined for their probable environmental impact.

We have these specific comments and questions on the Draft Environmental Statement:

1. Summary, item 3 - This section does not mention impacts from plant, roads, and power lines. We suggest also that another sentence be added that the potential impact on Sespe Creek due to the removing of over a million gallons of water a day from the well at the plant site is unknown. 1

2. Page 4, 1st paragraph - What effects will the channels have on drainage? Do existing canyon channels have sufficient capacity to handle this additional flow? 2

3. Page 5, 2nd paragraph - We were advised by the company that an area of 7-10 acres would be disturbed annually. The statement in the last sentence is correct, assuming probable rehabilitation and successful growth. Previous experience in this area indicates such rehabilitation will be slow and difficult. 3

4. Page 7, 1st paragraph - While reference is made on page 26 as to the possible effects, none of the studies to date has given proper attention to the potential effect of removing 1,152,000 gallons of water each day from the well drilled at the proposed 4

plant site. Information is needed as to whether this drawdown would affect only the aquifer in which the 940 foot well is located, or whether it would result in a reduction of flow in Sespe Creek, particularly during the critical summer months. Any significant reduction in flow could have serious effects on riparian vegetation, fish life, and downstream water uses. 4

5. Page 7, 2nd paragraph - Pursuant to the provisions of the Los Padres Multiple Use Plan, the special use permit or easement for transmission line up to 33 KV would, in all probability, provide that the line be buried on National Forest land. Since the majority of the lands in this area are National Forest, it is probable that the entire transmission line would be buried. 5

6. Under "Probable Environmental Impact of the Proposed Action", there is need to include impact on fisheries. Although there is no fishery within the proposed lease area, there are 43 miles of fishing water below the lease area that could be affected by the proposed mining activity. Already, silting in Chorro Grande Creek is associated with the mining claims road system. 6

7. Additional information is warranted on the total effect to the lower stream flows as a result of 600 to 800 gallon-per-minute well proposed at the lease site.

8. On page 16, although only 40 acres of deer winter range would be physically disturbed at any one time, deer would be disturbed continuously over a much larger area.

9. Page 16, 3rd paragraph - As we understand it, the 40 acres disturbed at any one time involves only the pit. Overburden, plant site, roads, and transmission line disturbances are not included. 7

10. Page 18 - The amount of noxious gases released should be included. Assurance is needed that there would be no pollution from fluorine gas or soluble fluoride compounds. 8

11. Page 19, 1st paragraph - Existing standards may not be adequate with regard to condor. 9

12. Page 19, last paragraph - Overhead transmission lines could have an adverse impact on the condor.

13. Page 22, Artifacts - A complete archeological search in advance of operation is necessary. 10

14. Page 22, Health and Safety - The effects of spills of phosphoric acid should be evaluated as to impact on other resources. 11

15. Page 23, top paragraph - The State Division of Highways has advised Los Padres National Forest personnel that it would cost $2,000,000 to $4,000,000 to rebuild certain bridges and to resurface the highway to a standard to accomodate this increased truck traffic. While truck traffic would not go down the main street of Ojai, it would pass in front of the high school and the main shopping center. It should be pointed out that the State of California uses funds derived from vehicle license fees and fuel taxes for highway purposes. Thus, the applicant would be a major contributor to his highway needs. 12

16. Page 24 - The 250' buffer zone should be a minimum distance. A greater amount may be necessary in some places. 13

17. Page 25, item 9 - Requires physical as well as vegetative restoration. 14

18. Elaborate on the feasibility of removing acid from the waste so as to produce tailings with contained water having a neutral pH. Opponents of the project claim that U.S. Gypsum has not been able to economically eliminate acid from the tailings in its pilot mill in Santa Paula. Acid left in the tailings could adversely affect water quality in Sespe Creek.

19. Elaborate on the feasibility of vegetating or otherwise stabilizing the outslopes of waste rock dumps and road cuts and fills so as to preclude erosion and siltation. If revegetation of disturbed areas cannot be quickly accomplished, erosion and siltation during periods of heavy rainfall in the first few years after disturbance could be extreme.

20. Elaborate on the location of proposed sewage treatment works in relation to aquifers and measures which would be necessary to ascertain that percolation through soils into the ground water will not occur. U.S. Gypsum should furnish a design of its proposed sewage treatment facility, show the relationship of the facility to bedrock geology and provide data on soil percolation rates at the site chosen.

21. Elaborate on water quantity relationships of the proposed withdrawal by U.S. Gypsum of 1 million gpd from a deep well to the prior water rights of nearby private landowners and to the maintenance of flows in Sespe Creek. Needed here is an examination of the hydrogeology of the Pine Mt. - Sespe Creek area. Dr. William R. Dickenson, professor of geology at Stanford University, has conducted intensive geologic mapping in the area. Dr. Dickenson's maps and data, as well as those obtained by Dr. K. B. Hall, consulting geologist for U.S. Gypsum Company, could provide a basis for analysis of the hydrogeology.

14

22. Elaborate on air quality as affected by sulfur oxide emissions from the proposed sulfuric acid plant. Data on ambient air concentrations of sulfur oxides at ground level in the immediate vicinity of existing sulfuric acid plants of the 500 tons per day size should provide a basis for analysis. Also needed would be meteorological data and anlaysis to determine how well sulfur oxides would be dispersed under varying weather conditions.

23. Elaborate on the effects U.S. Gypsum truck traffic would have on camp sites along Highway 33.

Please send us a copy of the final environmental statement when completed. The final statement will be essential in determining our recommendation on issuance of the lease.

Sincerely,

Adrian M Gilbert

ADRIAN M. GILBERT
Acting Deputy Chief

RESPONSE TO COMMENTS ON DRAFT ENVIRONMENTAL STATEMENT, PROPOSED PREFERENCE RIGHT PHOSPHATE LEASE, LOS PADRES NATIONAL FOREST, VENTURA COUNTY, CALIFORNIA

Comments from: United States Department of Agriculture, Forest Service, Letter of September 24, 1971

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1. A new Summary Section has been prepared for the final environmental impact statement. The summary is not intended to list all impacts associated with the proposal, but rather is meant to highlight the most significant environmental impacts. The revised Summary Section does mention the most significant environmental impacts associated with the proposed operation, including those associated with the construction and operation of facilities not directly related to the mining of phosphate. The potential impact on Sespe Creek is discussed in the body of the environmental impact statement; however, the probability of impacts occurring from removal of ground water is sufficiently low to preclude its being addressed in the Summary.
2. The drainage channels constructed on the uphill side of the mining quarries will serve to divert the normal runoff from the slopes into the existing stream channels. Drainage flow rate and individual canyon channel capacities are unknown at this time. However, this aspect of the proposal will not add any additional runoff to that already occurring on the area and the proposed diversion channels will only concentrate that portion of the runoff which was previously occurring as an overland flow through the mine quarry area.

3. Difficulties anticipated in rehabilitation, particularly of south- and west-facing slopes, are discussed in the environmental statement. Planned irrigation of replanted areas should increase the probability of successful reestablishment of chaparral vegetation.

4. The impacts of water pumpage are treated in the final environmental impact statement. Currently available data indicates that pumpage of water from the Godwin Syncline should have no effect upon streamflow in Sespe Creek and a minimal effect upon streamflow in Chorro Grande Creek. However, the data do not allow us to state this as a definite conclusion. Records from observation wells will be needed to conclusively define this impact. Such wells are provided for in the mitigation section.

5. The Forest Service member of the EIS Team has indicated that undergrounding of transmission lines along the entire route may not be desirable because of the impact upon soils, vegetation, and aesthetic quality. Undergrounding of the utility lines where ridges are crossed will be required to lessen the possible impact of these lines on the California condor. The remainder of the transmission line route will be undergrounded where the Forest Service indicates that the impacts of constructing underground transmission lines will be less than construction of overhead lines. If the Forest Service feels that undergrounding of the entire line is desirable, this can be addressed when applications for SUP's are made.

6. The impact on the rainbow trout fishery in Sespe Creek is discussed in the final environmental statement and the section on wildlife impacts has been expanded to more adequately discuss the impact on the Mount Pinos deer herd.

7. Acreage estimates of the area disturbed during the mining process and the area included in sites for facilities are included in the description of the proposed action in the final environmental impact statement.

8. The proposed production process is a low temperature process that will not involve the emission of noxious or toxic gasses. Fluoride resulting from the production of dicalcium phosphate and phosphoric acid will be primarily in the form of insoluble calcium fluoride (Ca F). EPA has indicated that some level of fluoride emission can be anticipated. The problem with sulfur dioxide (SO_2) has been largely eliminated. Sulphuric acid will not be produced on-site, but rather will be trucked in from Maricopa.

9. The section describing impacts on the California condor has been completely rewritten. Overhead transmission lines will have an adverse impact upon the condor, particularly where these overhead lines cross ridge tops along condor flyways.

10. A reconnaissance level survey of the archaeological resources of the Pine Mountain area was conducted by the Los Padres National Forest archaeologist. More intensive surveys will be needed prior to reaching a decision on the proposed lease application.

11. More detailed information of the effect of acid spills is included in the final environmental statement.

12. Very little of the traffic associated with the revised proposal (as discussed in the final environmental statement) will pass through Ojai. Most of the truck traffic generated by the proposed plant will travel that portion of Highway 33 that lies between the mouth of Chorro Grande Creek and Maricopa. CALTRANS has on three occasions informed us that they have no plans to upgrade Highway 33 during their current planning period, which runs until the year 2000. The impact of increased truck traffic on bridges and road surfaces is discussed in the final environmental statement.

13. The buffer left along stream channels is presently assumed to be 250 feet. If an additional buffer strip is needed at specific locations, these can be identified and included as stipulations in the approved mining plan.

14. The several items of information which the Forest Service indicated required elaboration are addressed in more complete detail in the final environmental statement. Since these comments were addressed to the admittedly rather skimpy draft statement, they will not be addressed in detail here. The reader is referred to the text of the final environmental statement for a more complete discussion of the design and location of plant facilities, impacts on the present environment, and proposed mitigation.

D. Numerous comments submitted by the Forest Service were considered in preparing this final environmental statement. Most of the comments were adopted with little or no modification.

Those comments concerning direct impacts on the California condor, were only partially incorporated. However, to make clear their point of view, the exact proposed language is provided as follows:

At present, condors do not use the actual area covered by the lease but they do use the adjacent area, which has been classed as critical habitat for the condor. Past studies have indicated that mechanized activity and blasting within 1-1/2 miles of nest sites will make the site unusable. The condor has a greater tolerance to activity near roost sites. The closest nest and roost site and a condor bathing/drinking pool are 1-3/4 miles from the east edge of the proposed lease area. Thus, the actual physical change and anticipated increase in noise level and activities in the immediate lease area itself should have little effect on the condor.

The larger area covered by the prospecting permit does include 2,240 acres designated by the Condor Recovery Team as critical habitat and also includes the bathing pool and a nest site. If at a future date a lease was applied for in this larger area, the condor could be adversely affected to a significant degree through the loss of the nest site, bathing/drinking pool area, and critical habitat area. Such a future lease application would require a new environmental statement.

Although the actual physical change and activity in the proposed lease area will not directly affect the condor, the emission of fluorides from the plant may pose an additional threat to the condor. According to EPA emission standards, up to 1,000 pounds of gaseous fluorides may be produced annually. These fluoride emissions will settle back on parts of the surrounding area, depending upon local meteorological conditions and dispersion characteristics, which have not been determined. Forest Service studies in Montana* showed that heaviest concentrations of fluorides in living plants occurred within four to five miles of an aluminum reduction plant. The bathing/drinking pool is within 3-1/2 miles of the processing plant and 1-3/4 miles from the east edge of the lease. The up- and down-canyon winds of Sespe Creek will direct the emissions over the bathing/drinking pool and roost area part of the time. It is expected that increased fluorides will cause damage to vegetation and an increase in the fluoride content of the water.

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* Carlson, Clinton E., and Jerold E. Dewey. 1971. Environmental Pollution by Fluorides in the Flathead National Forest and Glacier National Park USDA, Forest Service, SEPF Forest Insect Disease Branch, Northern Region, Missoula, Montana.

The actual increase in fluoride content of the water is unknown at this time but it is assumed it will not increase much above two parts per million. If this assumption is true, then there would be little impact on the condor. If this assumption is not true and the fluoride content of the bathing and drinking water of the condor increases significantly above this amount, then the health of the condor and egg production could be affected. The number of miles the fluorides will be carried is unknown at this time.

If the prevailing winds carry the fluorides northwesterly more than 15 miles, the habitat of two other endangered species could be affected. These are the San Joaquin kit fox and blunt-nosed leopard lizard. Whether the effect on these species would be critical is unknown.

A final direct impact involves the electrical power supply to the mine site. Above-ground powerlines from the south, following the approximate route of Highway 33, would pose little hazard to condors except where the lines cross the Ventura River - Sespe Creek divide, west of Nordhoff peak. Low-flying condors might fly into a line at that point; the rest of the line would be in canyons seldom used by condors. However, any line from the north, west, or east could have a disrupting effect on nesting and roosting condors during the construction stages, and above-ground portions would be a hazard to ridge-following condors after construction.

The introduction of industrialization, mining, and related activities for up to 100 years will serve as additional attrition of the total condor environment. What the total affect of these impacts will be is impossible to foresee.

Parameters influencing condor tolerance to most of these disturbance factors are little understood, either on an immediate or cumulative basis, nor is it likely that such definitive information will become available in the near future. Subtle but critical stress factors associated with modification of traditional activity patterns could also be important to the survival of the species. The degree of risk of impact of the proposed action to the condor is dependent upon (1) the cumulative effect of various factors of mining and related activities, and (2) the current precarious existence of these species as influenced by its biological specialization and uniqueness, and by man-introduced factors unrelated to the proposed action. The current critical status of the condor population in terms of mortality and recruitment is dependent upon reducing all possible risks to this species.

ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF THE
ADMINISTRATOR

August 27, 1971

Mr. Burton W. Silcock
Director
Bureau of Land Management
U.S. Department of the Interior
Washington, D.C. 20240

Dear Mr. Silcock:

The purpose of this letter is to transmit comments of the Environmental Protection Agency on the Bureau of Land Management's draft environmental impact statement on a proposed open pit phosphate mining operation in the Los Padres National Forest, Ventura County, California.

The detailed commentary on the impact statement was prepared by our San Francisco Regional Office and is attached for your use. As stated in these comments, we find that the proposed mining operations pose significant environmental concerns, and there is a substantial question as to whether the mining company will be able to take pollution control measures that will prevent degradation of air and water quality from an open pit mining operation of this scope, location, and duration. Therefore, we recommend that the Department of the Interior adopt suggested alternative four in acting on this lease: "Postpone issuance of the lease in the interest of conservation and request a showing of need for production of phosphate, considering possible environmental damage from the mining, processing, or use of phosphate." Subsequently, unless it can be shown that there is a national need for phosphate sufficient to justify the possible adverse environmental impact, and unless stipulations can be made which assure that requirements for air and water pollution control will be met in carrying out mining and processing operations, we would recommend that the lease be denied.

Thank you for the opportunity to review this draft environmental statement, which is one of the most complete we have received on a mining project. Should you have any questions, please contact Mrs. Nerenberg of our staff.

Sincerely,

George Marienthal

George Marienthal
Acting Director
Office of Federal Activities

Attachment

ENVIRONMENTAL PROTECTION AGENCY
REGION IX

Review and comments on draft Environmental Statement submitted by the Bureau of Land Management for Preference Right Phosphate Lease Application within the Los Padres National Forest, Ventura County, California.

The statement should include a more detailed discussion of the process of land reclamation including data on whether or not the original topography will be restored, and how long the mined out pits will remain open. 15

Further discussion should be included regarding erosion control during and after the mining operation, and the danger of siltation of the affected streams, especially during the rainy seasons.

The effects of ground water depletion, in a water deficient area, should be discussed in more detail. 16

Concerning the disposal of sewage, there should be some discussion of the effectiveness of evaporation ponds during the rainy season. 17

It seems clear that if the lease is awarded to the applicant, Highway 33 will have to be widened to accommodate the increased truck traffic. The statement should discuss this possibility with respect to the adverse effects of such a highway widening, such as erosion, siltation, increased high speed vehicular traffic, increased noise, and degradation of air quality. These parameters should also be discussed with respect to the access roads that will be continually constructed as the strip mining progresses. 18

The environmental impact of the transmission line needed for the project should be discussed in more detail, and the line should be constructed according to the Environmental Criteria for Electric Transmission Systems published by USDI & USDA. The fire hazard of the project in this fire prone area should be described in more detail. 19

A more detailed map should be included indicating the lease area, location of the processing plant, and the affected part of Highway 33. 20

The statement should include a discussion of the air pollution resulting from the mining operations in relation to Federal ambient air quality and source emission standards. This would necessitate estimation of either emitted quantities or source emission concentrations for carbon monoxide, nitrogen oxides, particulates (especially dust from blasting, excavation and 21 loading,) and hydrocarbons. An estimate of the ambient concentration of all these pollutants and SO_2 at the property line would also have to be made.

A complete discussion should be included on the effects of the degraded air quality on all vegetation in the surrounding area. The possible damage caused by SO_2 is particularly important, since extremely low concentrations cause damage to pine trees such as needle drop, growth reduction, and decrease in cone production. 21

Ojai Valley is particularly susceptible to air pollution buildup. The effects of the mining operation on the ambient air quality in this valley should be considered.

The effects of the degraded air quality on the California Condor and on possible visibility reduction should be considered.

Since this project will have so many adverse effects upon the California Condor, air quality, water quality, open space, aesthetic appreciation of wilderness, campgrounds, trails, wildlife and erosion, the Environmental Protection Agency recommends that alternative number four be adopted. "Postpone issuance of the lease in the interest of conservation and request a showing of need for the production of phosphate, considering possible environmental damage from the mining, processing or use of phosphate".

RESPONSE TO COMMENTS ON DRAFT ENVIRONEMNTAL STATEMENT, PROPOSED PREFERENCE RIGHT PHOSPHATE LEASE, LOS PADRES NATIONAL FOREST, VENTURA COUNTY, CALIFORNIA

Comments from: Environmental Protection Agency, letter of August 27, 1971

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15. More detailed information on land reclamation and rehabilitation is now included in the final environmental statement. It should be noted that the original topography will not be restored. Additional information on erosion control measures is now included in the final statement.
16. While the information from the limited production test is insufficient to conclusively state that there will be no ground water mining, the impact, if such mining is confined to the Godwin Aquifer, should be minimal. A more complete discussion of the impacts of water withdrawal on the Godwin Syncline Aquifer is included in the text of the statement.
17. A more detailed discussion of the operation of waste water and sewage treatment facilities is included in the final statement.
18. Widening of Highwy 33 is not considered necessary by CALTRANS. Impacts associated with access road construction are addressed in the text of the statement.
19. The environmental imapcts of the transmission line are generally discussed in the final statement. More detailed assessment of the impact will have to await the selection of alternative routes. The

construction of the transmission line will require permits from the Forest Service. The Forest Service has indicated that an additional environmental impact statement will be needed on the transmission line. Transmission lines constructed in connection with the project will be according to the "Environmental Criteria for Electric Transmission Systems," USDI and USDA. Discussion of the increased fire risk associated with the project is included in the final environmental statement.

20. Map coverage has been considerably expanded and a map is included providing the information on the lease area, location of the processing plant, and that portion of Highway 33 that will be affected by the proposal.

21. The discussion of air quality impact has been expanded in the final environmental statement. Since production of sulphuric acid on-site is no longer being considered, SO_2 emissions are no longer a major aspect of the proposal. EPA's Raleigh Laboratory has indicated that emissions of fluorides are probable. Detailed meteorological information is not available and, therefore, estimates of the effects of pollutants emitted by mine machinery and trucks cannot be made. Some information is currently available on particulates (fugitive dust) resulting from the mining operation. However, because of the lack of specific data, these cannot be more than general approximations. With the deletion of the proposed sulphuric acid plant, air quality impacts are considerably lower than in the original proposal.

Additional information on the effects of air pollutants is included in the final statement.

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20201

[illegible] 1971

Mr. Irving Senzel
Assistant Director
Bureau of Land Management
United States Department of the Interior
Washington, D.C. 20240

Dear Mr. Senzel:

This is in response to your letter of July 14 requesting comments on the Draft Environmental Statement concerning mining in Los Padres National Forest, Ventura County, California.

The proposed action would involve the lease of 2,434 acres for extraction of phosphate ore by the open pit method with ore processing being carried out at the site. Production of about 650,000 tons of ore per year is contemplated. The area is located about 50 miles north of Los Angeles and about 20 miles northeast of Santa Barbara. Direct adverse affects on health and well-being are limited to a shrinking of areas available for recreation and to the hazards associated with heavy traffic on the narrow roads. 22

We think serious consideration should be given to the aesthetic aspects and to potential pollution problems, but we will defer to other agencies for specific comments on these points.

The opportunity to review this draft statement is appreciated.

Sincerely yours,

Merlin K. DuVal

Merlin K. DuVal, M.D.
Assistant Secretary for
Health and Scientific Affairs

RESPONSE TO COMMENTS ON DRAFT ENVIRONMENTAL STATEMENT, PROPOSED PREFERENCE RIGHT PHOSPHATE LEASE, LOS PADRES NATIONAL FOREST, VENTURA COUNTY, CALIFORNIA

Comments from: Department of Health, Education, and Welfare

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22. The Department of HEW indicated that direct adverse effects on health and well-being are limited to a shrinking of areas available for recreation and hazards associated with heavy traffic on the narrow roads. The statement has been expanded to more adequately document these impacts as well as the impacts on aesthetic quality and potential air and water pollution problems.

DEPARTMENT OF THE ARMY
SOUTH PACIFIC DIVISION, CORPS OF ENGINEERS
630 Sansome Street, Room 1216
San Francisco, California 94111

SPDPD-R

7 January 1972

Mr. Dale R. Andrus
Acting Assistant Director
Bureau of Land Management
U. S. Department of the Interior
Washington, D. C. 20240

Dear Mr. Andrus:

This is in response to your letter of 22 November 1971 in which you requested Corps of Engineers review and comments on the draft environmental statement for the Preference Right Phosphate Lease Application within the Los Padres National Forest, Ventura County, California (3500 (312)). In accordance with our review procedures, this letter shall serve as the consolidated response of the District Engineer, Los Angeles, and the Division Engineer, South Pacific.

The proposed plan does not conflict with existing or proposed plans of the Corps of Engineers. With reference to the sewerage systems discussed on page 17 of the statement, it would appear that consideration should be given to methods of disposal, etc., for those wastes, if any, which the recycling plant might be unable to utilize. It is suggested that plans for the sewerage systems be coordinated with the California Regional Water Quality Control Board, Los Angeles Region. 23

Thank you for the opportunity to review and comment on the draft environmental statement for this proposed action.

Sincerely yours,

DAVID N. HUTCHISON
Colonel, CE
Deputy Division Engineer

RESPONSE TO COMMENTS ON DRAFT ENVIRONEMNTAL STATEMENT, PROPOSED PREFERENCE RIGHT PHOSPHATE LEASE, LOS PADRES NATIONAL FOREST, VENTURA COUNTY, CALIFORNIA

Comments from: Department of the Army, Corps of Engineers

23. The Corps of Engineers suggested that consideration should be given to disposal of wastes which the recycling plant might be unable to utilize. The system is closed and there should not be any wastes that escape its confines.

March 3, 1849

United States Department of the Interior

BUREAU OF OUTDOOR RECREATION
WASHINGTON, D.C. 20240

IN REPLY REFER TO:

AUG 31 1971

Memorandum

To: Director, Bureau of Land Management

From: Director, Bureau of Outdoor Recreation

Subject: Review of draft environmental statement on proposed phosphate mining operation, Los Padres National Forest (Condor Area)

We have reviewed the subject draft environmental statement. Although the statement is well organized and appears to be an unbiased presentation of the situation, it can be improved. We are concerned about the extent of the impact of the mining operation on the outdoor recreation environment and the aesthetic resources in the area. We, therefore, offer the following comments for further exploration on the part of your Agency and discussion in the final version of the environmental statement.

Recreation Use. The statement needs a more complete description and analysis of recreation use of the area. This would include an assessment of the importance of this area in supplying existing and future recreation needs and the extent and quality of present use. This should be followed by a discussion of the anticipated effects of the mining operation on this use. 24

Sespe Creek. According to the preliminary draft of the Recreation Appendix for the Comprehensive Framework Study for the California Region (November 1970), the Sespe Creek-Sisquoc River was one of twenty-four free-flowing streams identified as having potential for inclusion within the National Wild and Scenic Rivers System. The Report recommended that it be included as an official study stream under Section 5(d) of the Wild and Scenic Rivers Act (P. L. 90-542). Although the recommendation may never see the light of day, it is significant to note that the Sespe Creek-Sisquoc River was identified as having national and regional importance. 25

Highway 33. The matter of realignment of the highway, possibly far-reaching in its effect on recreation and aesthetics, should be decided and evaluated prior to a final conclusion on the environmental 26 impact of the proposal. The State of California has Master Plans for both a Scenic Highway System and a Scenic Parkway System. A preliminary report, California Parkways (June 1967), presents the proposals of the Department of Parks and Recreation for the establishment of the State Parkway System. The Report refers to Highway 33 as a designated scenic highway and indicates that a segment of the highway would serve to connect the proposed Camino Cielo Parkway with the Sespe Creek Parkway. From the maps available in the Report, it appears that the connector segment of Highway 33 is within the impact area of the mining operation. This reinforces our view that the matters of realignment and assessment of scenic and recreational resources require further study and more emphasis in the environmental statement. 26

Potential Impacts on the Recreation Environment. Sulfur dioxide emissions from the sulfuric acid plant, smoke, and dust could result in vegetative damage over the 80-year mineral development period. The fire risk in the predominantly chaparral community is another serious threat to the integrity and future use of the Los Padres National Forest. Reference to the environmental evaluation of similar operations in forest communities and the success of reforestation would strengthen your environmental statement. Such information might also suggest further environmental conditions and terms to impose on the applicant, including a monitoring system to determine many of the unknowns associated with the proposal. The cumulative effects could be substantial. 27

Alternatives. Rather than rely solely on the applicant's negative views on underground mining, an objective assessment of the state of the art and associated environmental effects should be presented. 28

We appreciate the opportunity to provide comments on the draft environmental statement for the proposed phosphate mining operation.

Lorna H. Koenig
for G. Douglas Hofe, Jr.

RESPONSE TO COMMENTS ON DRAFT ENVIRONMENTAL STATEMENT, PROPOSED PREFERENCE RIGHT PHOSPHATE LEASE, LOS PADRES NATIONAL FOREST, VENTURA COUNTY, CALIFORNIA

Comments from: Department of the Interior, Bureau of Outdoor Recreation

24. The Bureau recommended that a more complete description and analysis of recreation use in the area should be included in the final statement. The appropriate sections of the statement have been rewritten and expanded in response to BOR and other agency comments.

25. Bureau of Outdoor Recreation commented that Sespe Creek had been identified as having potential for inclusion within the National Wild and Scenic Rivers system. Sespe Creek has not been included under Section 5(d) of the Wild and Scenic Rivers Act (P.L. 90-542) and is not proposed by either the Secretary of Interior or Agriculture as a study stream.

26. It was recommended that further analysis be made of the impact on scenic and recreational resources resulting from realignment of Highway 33. Discussions with CALTRANS indicate that there are no plans for realignment of this highway through at least the year 2000. While the designation of a highway as a "scenic highway" has no effect upon the highway design or use of the highway, additional information is included on the impacts of the proposal upon recreation and aesthetics.

27. The discussion of the environmental impact and mitigation measures had been expanded greatly in the final environmental statement.

In addition to the coverage in the mitigation section, the alternative of delaying a decision until additional information on critical resources is available is now included in the final environmental statement.

28. The Bureau suggested that "an objective assessment of the state of the art" of underground mining be considered as an alternative to the proposal. Discussions with Geological Survey indicate that underground mining is not a feasible alternative to this proposal.

United States Department of the Interior

GEOLOGICAL SURVEY
WASHINGTON, D.C. 20242

SEP 17 1971

(Sgd) Lewis M. Helm
SEP 23 1971

4-7

Memorandum

To: Director, Bureau of Land Management
Through: Deputy Assistant Secretary--Mineral Resources

From: Acting Director, Geological Survey

Subject: Draft Environmental Statement on Proposed Phosphate Mining Operation, Los Padres National Forest (Condor Area)

Subject draft environmental statement has been reviewed in the Geological Survey. The results of the public hearing on the subject held in Ventura, California, on July 27 and 28, subsequent to the preparation of your draft, will need to be incorporated. These may require a re-evaluation of some of the assumptions and conclusions in the present draft.

The following specific comments, keyed to appropriate divisions and subdivisions in the draft, are submitted for your consideration in preparing the final statement.

Proposed Action

Nature of the Proposal, page 2.

It would appear to be appropriate at this point to add reference to the Interior Solicitor's Opinion A-30978 (Supp.) of June 30, 1971, which held, in connection with preference-right sodium leases in oil shale deposits, that an applicant who has made a bonafide mineral discovery satisfying the requirements of the Mineral Leasing Act within the term of a prospecting permit is entitled to the issuance of a preference-right lease. 29

Probable Environmental Impact of Proposed Action

General Description of the Area, page 11, paragraph 2.

"Low flow samples have higher total dissolved solids contents, and for some reason the higher flows, representing winter runoff, yield higher sodium and chloride contents." The reason for this 30 is probably due to washing, during high runoff periods, of the thick gypsum bed which overlies the phosphate. The protection this offered to the phosphate bed is possibly also one reason why the phosphorous content of the water is low.

The statements are also made that "All of the waters are near saturation with calcium sulphate and calcium carbonate * * *. Under existing conditions, water of the Sespe and its tributaries are relatively clean and fresh in terms of dissolved mineral content." This is an apparent contradiction; either condition would seem to exclude the other. Data should be quantitative, not just relative. We suggest that the last sentence in the statement be omitted. 30

The last paragraph, page 13, alludes to the dry climate as contributary to the area's isolation. If the average annual rainfall is 25 inches at the Piedra Blanca Station, 15 miles downstream from the lease as stated on page 9, it is possibly higher in the area under consideration. The climate under these conditions would be considered only seasonably dry.

Probable Environmental Impact

California Condor:

No analysis is submitted of the effects which existing adverse conditions have had on survival of the condor, such as aircraft flight patterns, sonic booms, hunter activity near nesting and roosting areas, and voice and travel noises on recreational trails, the highway, and at campsites. Such analysis might or might not support conclusions as to the relative effects on the habits of the condor of adding the mining operation to other activities on the highway, the trails, and elsewhere in the area. 31

Adverse Impacts Which Cannot be Avoided

The landscape will be disturbed and rearranged, page 28.

This is undoubtedly true, but the possibility that that portion involved in strip mining may be improved over the present condition by proper development and reclamation is not suggested. Roads built in connection with mining will open areas to many where only a few have previously been able to go only on foot or horseback. Proper planting of mined areas would possibly be an improvement over the existing desert type vegetation. 32

New cuts into the landscape for roads and mining pits will increase the chances of erosion.

This is obvious, but the impact on account of mining would perhaps not be as great as the impact from construction of the proposed scenic highway. It is true that mining is the point in question, but its impact should be considered within the framework of other proposed activities which will have similar environmental impact. 33

We would appreciate the opportunity to review the final draft of this statement before it is submitted to CEQ.

John P Albers

Acting Director

RESPONSE TO COMMENTS ON DRAFT ENVIRONMENTAL STATEMENT, PROPOSED PREFERENCE RIGHT PHOSPHATE LEASE, LOS PADRES NATIONAL FOREST, VENTURA COUNTY, CALIFORNIA

Comments from: Geological Survey, Memorandum of September 17, 1971

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29. The Geological Survey presented information concerning the Solicitor's Opinion A-30978 (supp.) of June 30, 1971. The rights of a preference right applicant are not relevant to the discussion of environmental impacts of the proposed operation treated in this environmental statement.

30. Discussions of water quality and climate have been expanded. More specific information on annual precipitation and water quality and surface water in and adjacent to the lease area is now included.

31. More specific information is included on the factors affecting survival of the California condor. Use of the lease area by the condor is low and the proposed operation is not expected to have a significant adverse impact on survival of the condor.

32. The Geological Survey raised the possibility that strip mining might result in "improvement" of the lease area. The possibility of using mine access roads for public access in the future is discussed in the final statement. Our assessment indicates that the aesthetic impacts of the operation are negative. The Geological Survey also indicated planting of mined areas would possibly be an improvement over the existing desert-type vegetation. Since this is a natural ecosystem, we must consider improvement within the

context of that natural system.

32. It is difficult to rationalize that an artificially established and maintained vegetative community represents an improvement over the natural community, which has evolved over time in response to the climatic and edaphic conditions represented in the area.

22. The Geological Survey quoted a sentence from the draft environmental statement: "...new cuts into the landscape for roads and mining pits will increase the chances of erosion." They indicated that the impacts resulting from mining would perhaps not be as great as those resulting from construction of the proposed scenic highway. No new highway construction is presently proposed. The comparison of impacts resulting from one type of activity (i.e., construction of a highway) are irrelevant to consideration of the impacts resulting from the proposed activity under consideration (i.e., mining of phosphate).

DEPARTMENT OF TRANSPORTATION
NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C. 20591

OFFICE OF
THE CHAIRMAN

September 7, 1971

Mr. Irving Senzel, Assistant Director
Bureau of Land Management
U. S. Department of Interior
Washington, D. C. 20240

Dear Mr. Senzel:

The National Transportation Safety Board has the following comments and suggestions relative to the Draft Environmental Statement enclosed with your letter of July 14, 1971, regarding a proposed open pit phosphate mining operation in the Los Padres National Forest, Ventura, California.

The Safety Board's reply is divided into sections which have been assigned titles describing the transportation safety problems that are discussed. The page numbers shown in our reply refer to page numbers in your Draft Environmental Statement.

1. Additional Heavy Truck Traffic on California State Highway 33

Access to the proposed mining area is by means of California State Highway 33 which extends from Ventura to Maricopa, then on into the San Joaquin Valley. This blacktop two-lane road was built about 30 years ago (p. 8), and it has been proposed as a scenic highway (p. 14).

The proposed phosphate mine and ore processing operation will generate about 70 outbound 20-ton semitrailer tank truck loads of 75 percent phosphoric acid each day (p. 6, p. 22). About 75 percent of this truck movement will be north of the proposed lease area, toward Bakersfield, and 25 percent will be south, toward Ventura (p. 23).

In addition, 15 to 20 semitrailer loads of incoming materials, principally sulfur and calcium carbonate, will be received each day. Thus each day 140 to 170 heavy truck movements (if inbound and outbound loaded and empty movements are counted separately) will be required to operate the mine.

The Draft Environmental Statement recognized the major transportation safety problem that would be created by the operation of large, heavy (20 to 25 ton) semitrailer-type trucks on a scenic two-lane highway that is almost 30 years old. "Realignment of Highway 33 to eliminate visually attractive curves and hills and thereby make it safer for heavy vehicles is a distinct possibility" (p. 19). "The greatest hazards to the general public would be those associated with increased vehicular traffic (140 truck movements per day). The slower, heavier vehicles pose hazardous problems for normal traffic on Highway 33 (two lanes)" (p. 22). "The effect of this additional traffic upon the condition of Highway 33 has not yet been determined. It is assumed that by adhering to the Division of Highways' weight limits, no serious damage will result. However, if the additional traffic requires realignment for the safety of all who may use it, there will be an additional economic impact to be felt by the Division of Highways of the State of California" (p. 23).

34

Heavily loaded, slow-moving trucks will undoubtedly create new traffic (passing) problems on Route 33, which is a two-lane, winding, mountain road. We note that some of the traffic on this road may have to operate over 5,080-foot Pine Mountain Summit. Possible measures to reduce the transportation hazards on such a road would include:

(1) Install the heaviest guard rails that are available,

(2) Add slow-speed lanes on hills to accommodate ascending trucks, and run-off lanes to accommodate a truck that experiences a brake failure while moving downhill,

(3) Require superior braking characteristics on trucks, including retarders to prevent run-aways from brake fade, and

(4) Require speed recorders for all trucking operations to insure that drivers do not exceed speed limits on downhill runs.

In the opinion of the Safety Board, the major transportation hazards that will be imposed upon State Highway 33 should be more thoroughly studied and appropriate hazard reducing actions should be evaluated before a mining lease is granted. Techniques to assess and evaluate the risk inherent in new ventures have been developed in the aerospace industry. Collectively, these new analytic techniques are called System Safety Analysis. At a minimum, these new techniques should be applied to the transportation aspects of the proposed operation before a lease is signed. 34

2. Design Standards for Entrance Road

"Access to the Phosphate Deposit" is discussed on page 3 of the Draft Environmental Statement.

"The company proposes that a 2-lane black-topped entrance road, capable of handling 25-ton trucks, would be built up Chorro Grande Canyon to the mine and processing plant. The road would start at Highway 33 about 0.5 miles west of the canyon. As mining progressed, haul roads would be built short distances downhill from and parallel to the mineral deposit. The roads would be designed to meet Forest Service road standards, following approved engineering practice."

This paragraph is actually discussing two types of road:

A. The entrance road between the state highway and the ore processing plant. This road will be used by heavy trucks delivering supplies and hauling away finished product (discussed above), by 60 to 70 employees per day (p.7), and by visitors to the area.

B. Haul roads, to move phosphate rock from the mining site to the processing plant.

The final sentence in the paragraph quoted above suggests that Forest Service road standards will be used as design criteria for both types of road. Although these standards may be adequate for rock-haul roads, the Safety Board has reservations about their adequacy for an entrance road that will be regularly traversed by a large number of employees and by heavy, loaded highway-type tractors with semitrailers. This appears to be another area that requires further detailed study. This study might show that adequate protection for employees could be obtained by requiring that the entrance road be built to Federal Highway Administration/American Association of State Highway Official (FHWA/AASHO) Standards. 35.

However, even the roadside barriers specified in these standards may be inadequate to restrain a heavily laden truck operating on a steep, mountainous road. From the information provided in the Draft Environmental Statement, it is not possible to assess the potential hazards that would be built into the entrance road under each of the two sets of standards.

3. Lease Stipulations for Transportation Safety

Stipulations which might be required by the Bureau of Land Management in an effort to mitigate the adverse impacts if the lease were issued are shown on pages 24 and 25 of the Draft Environmental Statement. To improve the transportation safety aspects of the proposed open pit phosphate mining operation, the Safety Board suggests that the following stipulations be added to this list:

1. That the lessee, in cooperation with the California Department of Public Works, Division of Highways, be required to submit a System Safety Analysis of the transportation aspects of their proposed operation.

2. That the entrance road be built to FHWA/AASHO standards rather than Forest Service standards.

We appreciate having the opportunity to comment on this Draft Environmental Statement.

If you have any questions about these suggestions, I will be glad to arrange a meeting for you with the members of our technical staff.

Sincerely yours,

John H. Reed

John H. Reed
Chairman

RESPONSE TO COMMENTS ON DRAFT ENVIRONMENTAL STATEMENT, PROPOSED PREFERENCE RIGHT PHOSPHATE LEASE, LOS PADRES NATIONAL FOREST, VENTURA COUNTY, CALIFORNIA

Comments from: Department of Transportation, National Transportation Safety Board, letter of September 7, 1971

34. The National Transportation Safety Board commented on the highway safety aspects of the proposed operation. They indicated that heavily-laden, slow-moving trucks would undoubtedly create passing problems for traffic on Highway 33, a two-lane, winding, mountain road. They were also concerned that traffic would have to operate over the 5,080 foot Pine Mountain Summit. The Safety Board recommended several modifications to Highway 33 that could be made to alleviate traffic safety problems. In California, highway design, construction, and maintenance are responsibilities of CALTRANS. Highway safety is also a responsibility of CALTRANS and enforcement of the Vehicle Code is a responsibility of the California Highway Patrol. CALTRANS has indicated that operation of trucks from the proposed mining operation would not require realignment of Highway 33. The applicant will be required (Mitigation Section) to contact CALTRANS, with the view towards cooperatively conducting a System Safety Analysis.

35. The National Transportation Safety Board also recommended that the entrance road to the processing plant be constructed to FHWA-AASHO standards, rather than Forest Service standards. Standards of the

proposed access road will be determined by the Forest Service, based on their analysis of access needs and safety requirements. The comments of the National Transportation Safety Board have been forwarded to the Forest Service for their consideration in determining conditions to be attached to rights-of-way and special use permits.

State of California
LIEUTENANT GOVERNOR'S OFFICE
SACRAMENTO 95814

ED REINECKE
LIEUTENANT GOVERNOR

OFFICE OF
INTERGOVERNMENTAL
MANAGEMENT
1400 TENTH STREET

September 2, 1971

Mr. Frank A. Edwards
Bureau of Land Management
U.S. Department of the Interior
Washington, D.C.

Dear Mr. Edwards:

RE: State Clearinghouse #71073008.

Under the provisions of the U.S. Office of Management and Budget Circular A-95 (revised April, 1971) the draft Environmental Impact Statement concerning the preference right phosphate lease application within Los Padres National Forest has been forwarded to various state departments for their review and comment.

This action is taken in accordance with the procedures for the review of direct Federal development projects which is outlined in the Resources Agency's Proposed Guidelines for the Preparation and Evaluation of Environmental Impact Statements under the California Environmental Quality Act of 1970. The guidelines have established a 60 day review period by the State of California for direct Federal development projects, which is well within the 90 day period provided for draft Environmental Impact Statements under the President's Council on Environmental Quality guidelines dated April 23, 1971. However, the State will complete its review as expeditiously as possible. The project was sent to various state departments for review on August 1, and the comments developed by the State will be forwarded to you by October 1. If there is cause for a longer review time, you will be so informed prior to the end of the 60 day review period.

In Governor Reagan's letter to Secretary Udall, dated March 4, 1967, the Department of the Interior was directed that the Resources Agency would develop the State's position on Department of Interior's projects. That is still the case. However, under the Resources Agency's guidelines, distribution and administrative control of projects being reviewed in California will be through the Office of Intergovernmental Management, within the Office of the Lt. Governor. Secretary Morton will receive instructions to that effect from Resources Agency Secretary Norman B. Livermore Jr., in the near future.

Sincerely.

Mark E Briggs

MARK E. BRIGGS, Assistant
Office of Intergovernmental
Management/State Clearinghouse

MEB:jer

cc: U.S.Dept of Agriculture
Honorable N.B. Livermore
State Senator R. J. Lagomarsino
Assemblyman L. T. McCarthy

NORMAN B. LIVERMORE, JR.
SECRETARY

RONALD REAGAN
GOVERNOR OF
CALIFORNIA

OFFICE OF THE SECRETARY
RESOURCES BUILDING
1416 NINTH STREET
95814

Department of Conservation
Department of Fish and Game
Department of Harbors and Watercraft
Department of Parks and Recreation
Department of Water Resources

Air Resources Board
Colorado River Board
State Lands Commission
Office of Nuclear Energy
State Reclamation Board
Regional Water Quality Control Boards
State Water Resources Control Board

THE RESOURCES AGENCY OF CALIFORNIA
SACRAMENTO, CALIFORNIA

APR 12 1972

Mr. Frank A. Edwards
Bureau of Land Management
Department of the Interior
Interior Building
Washington, D.C. 20240

Dear Mr. Edwards:

The State of California has reviewed the "Draft Environmental Impact Statement - Preference Right Phosphate Lease Application within the Los Padres National Forest, Ventura County, California", dated July 12, 1971, which you submitted to the Office of Intergovernmental Management (State Clearinghouse) within the Lieutenant Governor's Office. The review accomplished by the State fulfills the requirements under Part II of the U. S. Office of Management and Budget Circular A-95 and the National Environmental Policy Act of 1969.

The subject draft statement was reviewed by the State Departments of Water Resources, Conservation, Parks and Recreation, Agriculture, Public Health, and Fish and Game; the State Water Resources Control Board; the Air Resources Board; and the State Lands Division. The State's comments are as follows:

General Comments

1. We feel that the Statement should (1) present the positive as well as the negative aspects of the project on the environment; and (2) present the entire issue of the mining operation with an economic evaluation of the project as part of the environmental impact. 3

2. The Statement should be revised to provide specific information necessary to evaluate the impact the project will have on air, water, fish and wildlife, and recreation. 37

3. Many terms used are vague and seem to have different meanings at different places in the Statement. The terms "lease area" and "area" should be clearly identified in order to determine what area is being discussed under specific items. These terms are important for evaluation of the impact on the environment because only 400 acres of the 2,434 acres within the proposed lease would be disturbed by mining over a project-life of 80 to 100 years. Additional terms that required clarification as to the meaning are: (p. 10, second paragraph) detachability; (p. 10, second paragraph) riparian type, and (p. 10, second paragraph) north slope. 38.

4. A complete report on waste discharge should be filed so that the project would comply with the Porter-Cologne Act. 39

5. The Statement should contain a number of specific elements as listed below necessary for an evaluation of the environmental impact of air pollution from the operation. 40

a. Estimates should be presented as to the quantity of the several contaminants (specifically particulate matter, sulfur dioxide, carbon monoxide, oxides of nitrogen, and fluorine which is likely to be ~~o~~emitted).

b. Information should be presented as to the measures to be taken to control atmospheric contamination.

c. Consideration should be given to the possible presence of plants or animals susceptible to pollution; e.g., sulfur dioxide, fluorine, or particulate matter, and the possible effects these substances will have on the plants or animals in the area.

6. The Statement makes reference to the need for a transmission line 14 miles long to serve the mining operation. This as well as any other required transmission facilities should be located in a manner which would minimize its visibility. 41

7. The discussion of affects of the mining operations on vegetation is completely inadequate. This area should be greatly expanded. If the disturbed areas can not be completely revegetated or if the mining operation is likely to adversely affect surrounding vegetation this should be clearly recognized in the Statement. 42

Specific Comments

1. Page 2, second paragraph: The true thickness of the phosphate zone is 200 feet and average thickness of ore zone is 100 feet. With the phosphate zone dipping into the mountain at 30 to 40 degrees, it is very doubtful that a bed with true thickness of 200 feet could form a "band varying from 1,000 to 2,000 feet in width". The paragraph suggests to the uninformed a band 1,000 to 2,000 feet wide and 5 miles long that is subject to mining. 43

2. Page 3, second paragraph: The positive and negative aspects of the new road construction upon the environment should be considered.

3. Page 4, first paragraph: Methods to prevent siltation problems from recorded 5.50 inches of rainfall within a 24-hour period should be presented. 44

4. Page 6, last paragraph: Production of 500 tons of sulfuric acid daily would have significant effects on vegetation unless the "closed system" prevents environmental pollution. Efficiency of the "closed system" should be discussed in order to evaluate the possible impact on vegetation caused by the production of 500 tons of sulfuric acid daily. 45

5. Page 7, first paragraph: The impact of wells producing 1,152,000 gallons of water daily on the local ground water basin should be presented.

6. Page 9, second paragraph: The phrase "basic geology of the area is the Sespe Sandstone" does not describe the area geologically. The ore zone is Santa Margarita Formation and the region is mostly Marine Eocene and Paleocene units. The Miocene Marine units (Santa Margarita Formation, Monterey Shale, and Rincon Shale) and the Oligocene nonmarine Sespe Formation occupy a faulted synclinal trough surrounded by the older rocks. 45.

7. Page 10, second paragraph: The extent of soil evaluation should be further discussed in order to evaluate the moderate-to-high erosion hazard rating of the soil. Furthermore, it is not clear whether this rating applies to the proposed mine area. 47.

8. Page 11, last paragraph: Clarification is required as to "low sediment yield" and its relationship to insoluble phosphate as presented in the Statement. The relationship between "low sediment yield" and "insoluble phosphate" should be clarified. 48.

9. Page 13, first paragraph: The sentence "although the actual site of the proposed mine is seldom used by condors, there is an active nest site slightly more than . . .", we feel should read: ". . . there is a nest site slightly more than 1½ miles away which was reported to have been last used by nesting condors some 10 or more years ago." 49

10. Page 13: Information provided by Mr. Fred Sibley, biologist for the U. S. Fish and Wildlife Service assigned to a study of the California Condor, indicates that this project would curtail the use of the south slope of Pine Mountain by condors for foraging, resting, and nesting. Because of status of the condor population, more discussion is necessary to document possible effects on the condor, particularly as it relates to the Sespe-Piru condor study area.

11. Page 16: The Statement refers to a loss of deer habitat, but it does not include the other wildlife species affected by that habitat reduction. 50

12. Page 16, last paragraph: In regard to the 245 acres of grassland, field observation indicates that the proposed lease area is virtually all chaparral. 51

While this is not to be construed as an endorsement of the project, the State recommends that if the preference right lease is granted after full consideration of the final E.I.S., it should be subject to the following conditions:

1. The twelve stipulations as enumerated on pages 24 and 25 of the Environmental Impact Statement draft prepared by the Bureau of Land Management, dated July 12, 1971;

2. the further stipulation that (a) no surface waters be removed from the Chorro Creek and Sespe Creek drainages, (b) equipment noises be reduced to, and kept at, the minimum practicable level, (c) no liquid, solid wastes, overburden or backfill be deposited or allowed to flow into Sespe Creek or its tributaries, and (d) adequate measures be taken to prevent pollution of the drainage from accidental spills; and

3. that no part of the other two current Phosphate Prospecting Permits in the area (that is, number R2339 and R2340) which lie within one-half mile of the boundary of any presently identified condor study area be included in any future lease.

Further, the State recommends that the General and Specific Comments contained herein be fully considered and appropriate action taken.

Thank you for the opportunity to comment on this draft Environmental Impact Statement.

Sincerely yours,

N B Livermore Jr.

N. B. Livermore, Jr.

cc: Mr. James A. R. Johnson, Executive Officer
Office of Intergovernmental Management
State Clearinghouse
1400 - 10th Street
Sacramento, California 95814
Attn: Mr. Mark Briggs (SCH #71073008)

RESPONSE TO COMMENTS ON DRAFT ENVIRONMENTAL STATEMENT, PROPOSED PREFERENCE RIGHT PHOSPHATE LEASE, LOS PADRES NATIONAL FOREST, VENTURA COUNTY, CALIFORNIA

Comments from: The Resources Agency of California, letter of April 12, 1972

36. The review comments indicated that positive impacts of the proposal should be discussed. There are no positive impacts on the environment resulting from this proposed action. In accordance with Department of Interior procedures, economic evaluations are not included within the environmental statement. An economic analysis is being prepared separately for use in the decision process. Many of the comments on the draft statement have been answered in the final statement. However, several specific comments require a specific response.
37. The impact section has been revised and expanded to provide more detailed information on the impacts of the project upon air, water, fish and wildlife, and recreation. This discussion of environmental impacts is found in Section III of the statement.
38. Insofar as possible, standardized terminology has been used throughout the statement. An attempt has been made to avoid the use of specialized technical language. In some cases, however, use of technical terminology is unavoidable, since it represents the only effective means of describing the impact of the proposal.

39. The applicant will be required to secure all necessary permits, including waste discharge certificates under the Porter-Cologne Act. A discussion of the waste disposal system is included in the description of the proposal and the impacts of waste discharge are discussed in Section III of the statement.

40. The discussion of impacts on air quality has been expanded. However, several of the factors determining total air emissions are not yet firm (e.g., the necessity of using on-site power generators). Elimination of the sulphuric acid plant has greatly reduced the anticipated emissions of sulfur dioxide in the area. EPA has indicated that the process will probably result in emissions of oxides of fluorine. The effects are discussed in the final statement. Particulates remain a significant air pollution factor, but there is insufficient data to estimate emissions at this time.

41. The impacts of transmission line construction and operation are discussed in Section III. However, this discussion is, of necessity, somewhat general. The location of transmission lines has not been established and a right-of-way from the Forest Service will be required prior to construction. Specific requirements on transmission line location and construction will be treated at the time an application is submitted to the Forest Service for the required easement.

42. The discussion of the effect of the proposed mining operation on vegetation has been expanded. Difficulties in reestablishing vegetation are discussed in the final statement.

43. According to the mining proposal, only 400 acres of the mineral deposit will be mined even though the deposit extends far beyond the site proposed for excavation. The impacts resulting from road construction are discussed in the final statement.

44. Methods to prevent siltation problems are discussed in the final statement. They are not, however, discussed in detail because specific methods cannot be analyzed until such time as a complete and detailed mining plan has been submitted.

45. No sulfuric acid will be produced on-site; all acid will be transported to the plant site from a railhead at Maricopa.

46. The impacts resulting from the withdrawal of ground water for the proposed mining operation and processing plant are discussed in the final statement. The description of the area's geology has been rewritten and expanded.

47. Additional information has been provided on soils and the soil-vegetation relationship. The discussion of sediment yield has been rewritten. The discussion of the process has been revised to incorporate additional information on the composition of the tailings.

48. The section dealing with water quality has been completely rewritten. The discussion in the draft statement was in error, in that sediment yield is relatively high in the area. This is primarily because of the geology of the area and the high precipitation (often up to several inches in 24 hours) received by the area during the winter months.

49. The discussion of the habitat utilized by the California condor has been completely rewritten. A map is furnished in Section III showing the approximate location of condor roosting and nesting sites and their relation to the proposed lease. The proposal might result in some curtailment of use of the southern flank of Pine Mountain by the condor. This area, however, is not utilized by the condor for feeding, nesting, or roosting. Therefore, the impact on the condor populations is likely to be minimal.

50. The discussion of habitat reduction has been expanded in accordance with the Resources Agency suggestions. The aerial composition of vegetative types within the area is discussed in greater detail in the final statement.

51. The grassland in the area is primarily found on the 240 acres of private land in sections 6 and 7.

STATE OF CALIFORNIA
RONALD REAGAN, Governor

ENVIRONMENTAL QUALITY STUDY COUNCIL
SACRAMENTO
1400 Tenth Street, Room 256

August 26, 1971

Bureau of Land Management
Interior Building
Washington, D.C. 20240

Dear Sirs:

Enclosed you will find a copy of a resolution on the proposed U.S. Gypsum phosphate mining operation in the Los Padres National Forest of Ventura County California. The resolution was adopted by the State Environmental Quality Study Council at a meeting in Lakeport, California on August 19, 1971.

We realize that the draft environmental impact statement on the mining operation is currently under review by California State agencies. The Council is a citizen's board, entirely independent of any line agencies and this resolution does in no way constitute a part of the state review process of environmental impact statements.

If you have any questions please feel free to contact this office: 1400 Tenth Street, Room 256
Sacramento, California 95814
Tel: 916 - 445-6411

Sincerely,

David L Baker

David L. Baker
Chairman

DLB:kp

cc: Rogers B. Morton

RESOLUTION NO. 71- 2 ELEASE: IMMEDIATE

STATE OF CALIFORNIA
ENVIRONMENTAL QUALITY STUDY COUNCIL

RESOLUTION

WHEREAS in testimony before the State Environmental Quality Study Council at a meeting in Santa Barbara on July 22, 1971 and in information supplied by the Bureau of Land Management in its draft environmental impact statement, there is considerable indication that the proposed phosphate mining operation of US Gypsum within the Los Podres National Forest will have the following possible impacts on the environment:

- negatively effect a portion of the California Condor habitat
- increase heavy duty truck traffic on a proposed scenic highway
- eliminate some of the winter range of the deer of the Pine Mountain-Reyes Peak area
- increase erosion and resulting siltation
- reduce aesthetic value of a wilderness area
- infringe upon prime recreational land
- increase noise from blasting, rock crushing, and vehicular activities; and

WHEREAS the wildlife, watershed, and recreational values of the Sespe Creek region are of major significance in view of their proximity to the large urban population of the South Coastal Basin; and

WHEREAS present information regarding the extent of possible environmental damage caused by the proposed activity is inexact and inadequate with respect to the magnitude of effect on the California Condor population, deer habitat reduction, stream siltation, water quality impairment, fish mortality, scenic values, and if and when major alteration is required to realign State Highway 33 for heavy truck traffic; and

WHEREAS there is well-documented evidence that the phosphate rock mining industry is suffering economically due to a current rather severe oversupply of phosphate and that the prospect for the industry in the immediate future is not encouraging; and

WHEREAS the Interior Department and the courts have held that a marketability test in determining whether valuable deposits of phosphate exist which would justify a preference right lease under the Mineral Leasing Act shall be based on present conditions rather than speculation or conjecture as to the future value of the deposits and shall include such relevant factors as quality and quantity of mining, production costs, transportation to markets, and existence of present demand; and

WHEREAS Congress and the President have stated that environmental costs shall also be included in the decision making process of federal agencies; and

(More)

WHEREAS over 7,000 residents of the Ventura, Santa Barbara area have expressed formal opposition to the phosphate mine: Therefore be it

RESOLVED that the State Environmental Quality Study Council recommends that further study be undertaken immediately by the Department of Interior to determine the magnitude of environmental costs associated with the proposed mining activity; and be it further

52

RESOLVED that the State Environmental Quality Study Council urge the Department of Interior to postpone issuance of the lease until such time as the applicant demonstrates a need for production of phosphate and that the feasibility of marketing such mineral under present economic conditions be weighed against the environmental damage resulting from the mining, processing, or use of phosphate in the Los Padres National Forest; and be it further

RESOLVED that the Environmental Quality Study Council urge the Department of Interior to include in its evaluation of future preference right leases, as a matter of policy, the environmental costs of the proposal as part of its determination of a valuable mineral.

David L. Baker, Chairman
Environmental Quality Study Council

Date: August 14, 1971

RESPONSE TO COMMENTS ON DRAFT ENVIRONMENTAL STATEMENT, PROPOSED PREFERENCE RIGHT PHOSPHATE LEASE, LOS PADRES NATIONAL FOREST, VENTURA COUNTY, CALIFORNIA

Comments from: State of California, Environmental Quality Study Council, letter of August 26, 1971

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52. The final environmental impact statement contains considerably more detailed information on environmental impacts associated with the proposed mining activity. One of the alternatives discussed in the final statement is the delay of a decision on leasing until additional information is obtained on several resources, including archaeological values and water quantity and quality impacts.

county of ventura

Air Pollution Control District
James B. Lehr
Director

August 25, 1971

Mr. Irving Senzel, Assistant Director
Bureau of Land Management
United States Department of the Interior
Interior Building
Washington, D.C. 20240

Dear Mr. Senzel:

This is in reply to your letter of July 14, 1971, requesting review and comments on the draft environmental statement regarding the proposed open pit phosphate mining operation in the Los Padres National Forest, Ventura County, California.

We provided some preliminary comments at the public hearings held in Ventura, California on July 28, 1971. (See attachment I with addendum.) In those preliminary comments, we attempted to outline the possible impacts which could be caused by air pollutant emissions from the proposed operations. Briefly, these possible impacts are health problems, damage to vegetation, visibility reduction, and the presence of objectionable odors.

In the evaluation of the environmental impact of any project, certain basic information is required to accurately assess the effects of the project. When dealing with air pollution impacts, the most basic information required is a reasonable estimate of air pollutant emissions. Without some understanding of what is going into the air, the determination of potential adverse effects due to air pollution simply cannot be made. For this reason, lists of criteria used for the preparation and evaluation of environmental impact statements almost always include air pollutant emission computations as a required item.

When we were asked by your office to review the draft environmental statement, we arranged a meeting with U. S. Gypsum to discuss the air pollution aspects of the proposed operations; however, in that meeting, a second meeting and several telephone conversations, we were unable to obtain sufficient information as to specific expected operations to determine the expected pollutant emissions.

On August 5, 1971, we sent a letter to U. S. Gypsum (attachment 2) outlining that information which we feel is necessary for the evaluation of the environmental impact of the mining operation and the expected status of compliance with our rules. We received a reply from U. S. Gypsum dated August 16, 1971 (attachment 3) which failed to provide us with the information requested. Until such information is provided, the impact of air pollutant emissions cannot be adequately assessed.

Sincerely yours,

VENTURA COUNTY AIR POLLUTION CONTROL DISTRICT

James B. Lehr

James B. Lehr
Director

Attachments (3)

cc: Rogers Morton
Boyd L. Rasmussen
Eldon Hayes
Dean F. Ratzman
John Tunney
Alan Cranston
Charles M. Teague
Ventura County Board of Supervisors
J. K. MacDonald
Robert J. Lagomarsino
David Calkins
William D. Ruckelshaus

PW/npb

Attachment I

COUNTY OF VENTURA
STATE OF CALIFORNIA.
COUNTY HEALTH DEPARTMENT
VENTURA, CALIFORNIA
93001

STEPHEN A. CORAY, M. D.
DIRECTOR OF PUBLIC HEALTH SERVICES

3147 LOMA VISTA ROAD
PHONE 648-6181

July 28, 1971

Attached are some preliminary comments of the Ventura County Air Pollution Control District regarding the (draft) Environmental Impact Statement prepared by the Bureau of Land Management in connection with a preference right phosphate lease application within the Los Padres National Forest, Ventura County, California (Condor Area), written July 12, 1971.

Ventura County Air Pollution Control District

James B. Lehr, Director

Phil White
Phil White
Air Pollution Monitor

July 28, 1971

My name is Phil White. I am representing the Ventura County Air Pollution Control District. On behalf of the District, I would like to thank the Bureau of Land Management and the Forest Service for giving us the opportunity to comment on the air pollution aspects of the proposed strip mining operation in the Los Padres National Forest.

We received a copy of the draft environmental impact statement for the proposed project on July 19, and consequently, have not had sufficient time in which to study the problems in detail. We intend to provide additional written comments within the 45 day period alloted.

Our reaction to the draft environmental impact statement is one of disappointment. The statement did not answer a most important question: What is the impact on the environment of the air pollutant emissions from the proposed mining operation? Because this question has not been answered, we suggest that the following course of action be taken: Prior to its release, the final environmental impact statement should be reviewed and approved by the Air Pollution Control District, the California Air Resources Board and the Environmental Protection Agency - Region 9. After release of the final statement and prior to any decision on the lease application, additional hearings should be held. The decision of whether or not to commit such a large parcel of public recreation lands to open pit mining for a period of 100 years should not be made without careful consideration of all available facts and opinions. The review and approval by environmental agencies coupled with additional public hearings should help ensure that a superior environmental impact statement is prepared.

The Air Pollution Control District is deeply interested and concerned about any project within Ventura County that will have an adverse effect on the air quality. We became interested in the proposed mining operation originally because of the obvious dust emission problem that accompanies such an operation. As the scope of the project expanded, additional pollution emission sources were proposed which in turn expanded our concern. Among these additional pollution sources are large power and heat generation units, diesel-powered vehicles, fuel storage tanks, and a sulfuric acid plant. At this point in time, we view the proposed project as being potentially degrading to the air quality in that area of the County. I say potentially degrading rather than definitely degrading because we have not been able to obtain sufficient information from the applicant to assess the exact magnitude of the air pollution problems. We were, however, able to make some preliminary estimates.

Based on information supplied by U.S. Gypsum, we estimated sulfur dioxide emissions from the sulfuric acid plant and power and heat generation units, assuming that the latter would utilize 2% sulfur oil. Sulfur dioxide emissions from these sources could total as much as 210 pounds per hour or 2.5 tons per day. To put this quantity in perspective, current county emissions of sulfur dioxide from all stationary sources are estimated at 2.1 tons per day. The effects of such a large quantity of sulfur dioxide are not known. To understand these effects, the following specific items should be given consideration:

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The damaging effects of sulfur dioxide to vegetation are well known. Pine trees and other conifers are extremely sensitive to injury. Growth reduction, needle drop, and decreased cone production have been observed at ambient SO_2 levels as low as .25 ppm. Many other species are also susceptible to damage. A complete survey must be made to determine the susceptible species in the area along with the threshold damage concentration for each species. The ambient levels of SO_2 in the entire area must then be predicted and a comparison must be made to determine whether vegetation damage is likely to occur; and if so, how severe the damage will be.

The effects of sulfur dioxide on health are also well known. Sulfur dioxide in large concentrations is lethal. In lower concentrations, respiratory irritation and alteration of lung function have been observed. Based on these health effects, the State of California has set the ambient air quality standards for SO_2 at .50 ppm for a one hour average or .04 ppm for a 24-hour average. When the standards are exceeded, health effects begin to occur. In order to see whether the proposed plant would cause concentrations in excess of these standards, we applied a diffusion modeling technique outlined in the H.E.W. publication: "Workbook of Atmospheric Dispersion Estimates" to the emissions from the sulfuric acid plant. The results of the computations, admittedly crude (because of the lack of detailed information about the plant), indicate that ambient SO_2 concentrations may well exceed both health standards and vegetation damage levels. This is not a conclusive statement and the subject must be given much more study.

I have mentioned briefly the emissions and some potential effects of sulfur dioxide from the proposed operation. We are concerned about the emissions and consequent effects of all pollutants generated. These pollutants are oxides of nitrogen, hydrocarbons, carbon monoxide, and particulate matter as well as sulfur dioxide. The quantities emitted of each of these pollutants must be computed for all operations, (such as the amount of dust released from the blasting operations). These emission values must then be related to their effects on the environment. Specifically, the following questions must be answered: What is the effect of the total operation on 54

1. Health problems in both man and animals?
2. Damage to vegetation in the area?
3. Visibility reduction?
4. The generation of objectionable odors?

These are difficult questions to deal with, but in order to adequately evaluate the environmental impact of this project, they must be answered.

I should mention here that although our emission regulations would be included as a condition of the lease, they do not necessarily guarantee that ambient concentrations will not exceed health and plant damage limits nor cause general degradation of the air quality. The Bureau of Land Management and the Forest Service should consider placing whatever air pollutant emission restrictions are shown to be necessary to ensure that good air quality and freedom from adverse effects are maintained in the Los Padres National Forest.

It is apparent that much more work is needed to satisfactorily assess the effects of the proposed project. I offer our expertise in the air pollution field to you for the purpose of writing the final impact statement and I hope our comments today will be useful to you. Thank you.

Addendum
August 25, 1971

In addition to our input at the July 28, 1971 hearings, some additional comments are included here as an addendum. Most of these additional comments are a result of informal conversations with James Southerland of the Environmental Protection Agency in North Carolina.

1. Air pollution should be added to the list of "adverse impacts which cannot be avoided." 155

2. It is said in the draft environmental statement that there would be no pollution from fluorine gas or soluble fluoride compounds. It is realized that the company is proposing the use of a new low-temperature process which will limit these emissions; however, there will undoubtedly be some emissions. 56

3. The emission of hydrochloric acid fumes from this process may be a problem.

4. There would be considerable particulates generated from stripping the overburden. A conservative estimate predicts that on the order of 1500 tons per year of suspended dust from the open area would be released.

5. Using EPA factors for rock handling processes, crushing, and fines milling, particulate emissions would be on the order of 1500 tons/year (suspended). There would also be particulate generated from storage piles, depending upon wind and moisture content maintained. 57

6. The effect of more than 3000 tons per year of suspended particulate would likely be a noticeable reduction in visibility. Current county particulate emissions from stationary sources total about 5000 tons/year.

PW/npb

RESPONSE TO COMMENTS ON DRAFT ENVIRONMENTAL STATEMENT, PROPOSED PREFERENCE RIGHT PHOSPHATE LEASE, LOS PADRES NATIONAL FOREST, VENTURA COUNTY, CALIFORNIA

Comments from: Ventura County Air Pollution Control District

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53. The sulfuric acid plant is no longer a part of the proposed operation. Sulfuric acid will be shipped to Maricopa by rail and trucked to the plant site where it will be stored until consummed in the process. Detailed information on the acid handling procedures is included in the final environmental statement. On-site power generation will be considered only if it is not possible to bring power in from an outside source. This aspect of the operation is discussed in Section I of the final environmental statement. The emission calculations computed by the Ventura County APCD are no longer applicable. Another possible source of emissions, including sulfur dioxide, would be the use of on-site power generators. The APCD requested information on the types of units, power ratings, fuel consumption, and emission estimates. At this time, the use of on-site power generation is considered only an alternative to bringing power in from outside the lease area. If Southern California Edison Company can provide the power, on-site generation will not be used (a standby generator may be employed; however, its operation would be intermittent, on an emergency basis). The design parameters for this power generating equipment cannot be specified since the use is tentative and specifications have not been developed.

The APCD also requested information on the dryers that would be employed in the production process to remove moisture from the dicalcium phosphate. Dryers will be of a screw-type, hot water core type. There will be no emissions from the dryers.

54. Estimates have been made of the emissions of particulates and gaseous materials from the various aspects of the proposal. Some of these estimates are admittedly rough, but they are based on the best available data. While additional information on emissions would be useful, the information in the final environmental statement is sufficient to allow an informed decision on whether or not the lease should be granted.

The APCD may need additional information to determine appropriate regulations for the proposed plant. If the decision to issue the lease is made, these can be obtained when the company applies for approval of its operating plan. Close coordination between the Geological Survey, Forest Service, and Ventura County APCD will be necessary in this event.

55. A discussion of air pollution is included in the section on "Adverse impacts which cannot be avoided."

56. As indicated in the APCD's comments, the company proposes to use a new low temperature process that will limit the emissions of fluorides. However, EPA's Raleigh Laboratory has indicated that some level of fluoride emissions is probable. Estimates of the level of emissions, based on comparisons with existing plants, is

included in the discussion of the environmental impacts. Emission of acid fumes is not felt to be a major problem by EPA.

57. An expanded discussion of the effect of emissions of particulates is included in the final statement.

Attachment 2

COUNTY OF VENTURA
STATE OF CALIFORNIA
COUNTY HEALTH DEPARTMENT
VENTURA, CALIFORNIA
93001

STEPHEN A. CORAY, M. D.
DIRECTOR OF PUBLIC HEALTH SERVICES

3147 LOMA VISTA ROAD
PHONE 648-6181

August 5, 1971

E. W. Duffy
President
United States Gypsum Co.
101 South Wacker Drive
Chicago, Illinois 60606

Dear Mr. Duffy:

Pursuant to the application, by U. S. Gypsum, on file with the Bureau of Land Management for a permit to conduct mining operations for phosphate deposits in Ventura County, California, we, as the agency responsible for air pollution control in the county, have repeatedly requested of your staff the information necessary to compute the expected air pollutant emissions from the proposed facility. While we recognize that your present plans include several alternatives, we must receive sufficient information about these alternatives to enable our staff to quantitatively estimate pollutant emissions.

Based on the general information which was made public at the recent hearings in Ventura County, we have attached a list of specifics which are required for our evaluation of the environmental impact of the alternative mining operations and the expected status of compliance with our rules. This is essentially the same list transmitted by telephone to Mr. Appleyard on July 21.

We trust you will give this your immediate attention as our input to the environmental impact statement has been required by the end of August. Further action on the mining permit application will await completion of this impact statement.

If there are any questions you or your staff has in answering the attached questions, please call.

Sincerely yours,

VENTURA COUNTY AIR POLLUTION CONTROL DISTRICT

James B. Lehr
Director

Phil White
Philip White
Air Pollution Monitor

PW/npb
Enc.
cc: G. J. Morgan, Chairman of the Board, U. S. Gypsum
Frank Appleyard, Director of Mining, U. S. Gypsum
Rogers Morton, Secretary of the Interior
Boyd L. Rasmussen, Director, Bureau of Land Management
Irving Senzel, Assistant Director, Bureau of Land Management
Eldon Hayes, Bureau of Land Management
Dean F. Ratzman, Hearings Officer, Office of Hearings and Appeals

U. S. GYPSUM - VENTURA COUNTY OPERATIONS
REQUIRED INFORMATION

A. Sulfuric Acid Plant

1. Capacity in tons/day
2. Plant location with respect to proposed property boundaries. (A scaled topographical map showing the location is sufficient.)
3. Stack height
4. Stack inside diameter
5. Stack gas flowrate
6. Stack exit velocity
7. Stack gas temperature
8. Stack gas water vapor content
9. Sulfur compound concentration in ppm and lbs/hr under nominal, maximum and upset conditions.
10. Oxides of nitrogen concentration in ppm and lbs/hr under nominal, maximum and upset conditions.
11. Acid mist concentration in grains/SCF and lbs/hr under nominal, maximum and upset conditions.
12. Estimated emissions of pollutants from storage tank vents, leaks, etc.

B. Power Generation

1. Type(s) of unit(s)
2. Nominal and maximum power generation rate in kilowatts
3. Fuel type and properties, including sulfur content
4. Fuel consumption in gallons or cubic feet per hour
5. Estimates of pollutants'emissions for oxides of nitrogen, oxides of sulfur, carbon monoxide, hydrocarbons, and particulate in ppm and lbs/hr.

C. Dryer

1. Type(s) of unit(s)
2. Site(s) of unit(s) in BTU/hr
3. Fuel type and properties including sulfur content
4. Fuel consumption in gallons or cubic feet per hour
5. Estimates of emissions (same as for power generation equipment)

D. Sources of Dust Generation.

For each of the following (and any other) processes, what is the material process weight in lbs/hr and what are the estimated particulate emissions in gr/SCF and lbs/hr? Emission estimates should be computed for nominal conditions and for extreme conditions (such as low humidity and Santa Ana winds).

1. Blasting
2. Ripping and scraping
3. Conveying with earth movers
4. Dumping
5. Crushing

D. 6. Conveying
   7. Storage
   8. Drying
   9. Processing
   10. Vehicle traffic on dirt roads.

E. Fuel Storage

For each fuel or other liquid stored, provide the following information:

1. Size(s) of tank(s) in gallons
2. Type of tank
3. Emission controls
4. Throughput in gallons/year
5. Estimated emissions.

F. Diesel Powered Vehicles

1. Number of units
2. Size of units
3. Fuel type and properties
4. Fuel consumption in gallons/day
5. Estimated emissions

G. Processing Plant

1. Input capacity in lbs/hr
2. Products produced in lbs/hr (such as gypsum, superphosphate, phosphoric acid, etc.)
3. Estimated emissions of particulate, oxides of sulfur, fluorine compounds, etc. in lbs/hr

H. Miscellaneous

Include data for any other anticipated source of air pollutants not mentioned above.

APPENDIX - A

Circular No. 2321

REGULATIONS PERTAINING TO:

LEASING OF MINERALS OTHER THAN OIL AND GAS

As contained in Title 43 of the Code of Federal Regulations

U.S. Department of the Interior

Bureau of Land Management

Reprint of regulations current as of March 7, 1972

Group 3500—Leasing of Minerals Other Than Oil and Gas

PART 3500—LEASING OF MINERALS OTHER THAN OIL AND GAS; GENERAL

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3501.1-3 Description of lands in offer.
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3502.5-1 Statements.
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3505.3 Solid (hardrock) minerals.
3505.3-1 Types of contracts.
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3509 Surface management.
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Subpart 3500—Introduction—General

§ 3500.0-3 Authorities.

The statutory authority for leasing the minerals in this part is contained in the cited acts.

(a) *Public Domain.* The act of February 25, 1920 (41 Stat. 437; 30 U.S.C., 181 et seq.), as amended and supplemented, including the amendatory act of August 8, 1946 (60 Stat. 950; 30 U.S.C., sec. 181 et seq.) and the act of September 2, 1960 (74 Stat. 781; 30 U.S.C., sec. 181 et seq.), the act of February 7, 1927 (44 Stat. 1057; 30 U.S.C., 281-287) and the act of April 17, 1926 (44 Stat. 301; 30 U.S.C., 271-276) as amended, hereinafter called "the act", provide for the leasing of all leasing act minerals.

(1) *Coal.* Sections 2 to 8, inclusive, of the act of February 25, 1920 (41 Stat. 438 et seq., 30 U.S.C. 201, 202-208), as amended.

(2) *Potassium.* Sections 1 to 7 of the act of February 7, 1927, as amended (44 Stat. 1057, 30 U.S.C. secs. 281-287).

(3) *Sodium.* Sections 23 through 25 of the act of February 25, 1920 (41 Stat. 447; 30 U.S.C. sec. 189, 261-263).

(4) *Phosphate.* Sections 9 to 12, inclusive of the act of February 25, 1920 (41 Stat. 440, 441, 30 U.S.C. 211-214) as amended.

(5) *Sulphur.* Sections 1 to 7 of the Act of April 17, 1926 (44 Stat. 301), as amended July 16, 1932 (47 Stat. 701; 30 U.S.C. 271-276).

(6) *Asphalt.* The Act of February 25, 1920 (41 Stat. 437; 30 U.S.C., sec. 181), as amended by the Act of September 2, 1960 (74 Stat. 781; 30 U.S.C. sec. 181, 241).

(b) *Acquired lands*—(1) *Leasable.* (i) The Mineral Leasing Act for acquired lands; enacted on August 7, 1947 (61 Stat. 913; 30 U.S.C. 351-359).

(ii) The authority conferred upon the Secretary by the act, supersedes the authority conferred upon him by section 402 of Reorganization Plan No. 3 effective July 16, 1946 (3 CFR 1946 Supp., Chapter IV), except as to leases or permits outstanding on August 7, 1947.

(2) *Solid (hardrock) minerals.* (i) Section 402, Reorganization Plan No. 3 of 1946 (60 Stat. 1099) transferred the functions of the Secretary of Agriculture and the Department of Agriculture relative to the leasing or other disposal of minerals in certain acquired lands to the Secretary of the Interior.

(ii) Section 3 of the act of September 1, 1949 (63 Stat. 683) authorized the issuance of mineral leases or permits for the exploration, development and utilization of minerals, other than those covered by the Mineral Leasing Act for Acquired Lands, in certain lands added to the Shasta National Forest by the act of March 19, 1948 (62 Stat. 83).

(iii) Section 3 of the act of June 23, 1952 (66 Stat. 285), authorized the Secretary of the Interior to administer, in the manner prescribed by section 402 of Reorganization Plan No. 3 of 1946, mineral deposits other than those subject to the provisions of the Mineral Leasing Act for Acquired Lands, in that part of the Juan Jose Lobato Grant Numbered 164, which lies northerly of the Chama River (North Lobato tract) and in part of the Anton Chiea Grant Numbered 29 (El Pueblo tract) as more particularly described in section 1 of the act of June 28, 1952.

(c) *Special acts.* (1) Gold and silver in confirmed private land grants. The act of Congress approved June 8, 1926 (44 Stat. 710; 30 U.S.C. 291–293).

(2) Asphalt in Oklahoma. The act of June 28, 1944 (58 Stat. 483–485).

(3) Silica sands and other nonmetallic minerals in certain lands in Nevada. The act of May 9, 1942 (56 Stat. 273) as amended by the act of October 25, 1949 (63 Stat. 886).

(i) Act of February 27, 1927 (44 Stat. 1057).

(ii) Leasable. Mineral Leasing Act of February 25, 1920 (41 Stat. 437) as amended.

(4) Leases of sand and gravel in certain lands patented to the State of Nevada. The act of June 8, 1926 (44 Stat. 708).

(5) Reserved minerals in lands patented to the State of California for park or other purposes. The act of March 3, 1933 (47 Stat. 1487), as amended by the act of June 5, 1936 (49 Stat. 1482) and the act of June 29, 1936 (49 Stat. 2026).

(6) Certain National Forest lands in Minnesota. (i) The act of June 30, 1950 (64 Stat. 311; 16 U.S.C. 508(b)).

(ii) Leasable. Mineral Leasing Act of February 25, 1920 (41 Stat. 437; 30 U.S.C. 181) as amended.

(7) Leases for minerals in lands withdrawn for reclamation purposes within the Lake Mead Recreation Area. The act of October 8, 1964 (78 Stat. 1039; 16 U.S.C. 460n).

(8) Prospecting and mineral leasing within National Forest Wilderness. National Forest Wilderness Act of September 3, 1964. (78 Stat. 890; 16 U.S.C. 1131–1136; 43 U.S.C. 1201.)

(9) Development of minerals in lands within Whiskeytown-Shasta-Trinity National Recreation Area. Section 6 of the act of November 8, 1965 (Public Law 89–336; 79 Stat. 1295). (i) Solid (Hardrock) minerals. (*a*) Section 10 of the act of August 4, 1939 as amended (53 Stat. 1196; 43 U.S.C. 387).

(*b*) Section 3 of the Act of September 1, 1949, (63 Stat. 683, 30 U.S.C. 192c).

(ii) Leasable. (*a*) Mineral Leasing Act of February 25, 1920 as amended (30 U.S.C. 181 et seq.).

(*b*) Acquired Lands Mineral Leasing Act of August 7, 1947, (30 U.S.C. 351–359).

§ 3500.0–5 Definitions.

(a) *Sole party in interest.* A sole party in interest in a lease or permit or an application for a lease or a permit is a party who is and will be vested with all legal and equitable rights under the lease or permit. No one is, or shall be deemed to be, a sole party in interest with respect to a lease or permit in which any other party has any of the interests described in this section. This requirement of disclosure in an application for lease or permit of an applicant's or other parties' interest in a lease or permit, if issued, is predicated on the departmental policy that all applicants and other parties having an interest in simultaneously filed applications for permits shall have an equal opportunity for success in the drawings to determine priorities. Additionally, such disclosures provide the means for maintaining adequate records of acreage holdings of all such parties where such interests constitute chargeable acreage holdings. An "interest" in the lease or permit includes, but is not limited to, record title interests, overriding royalty interests, working interests, operating rights or options, or any agreements covering such "interests." Any claim or any prospective or future claim to an advantage or benefit from a lease or permit, and any participation or any defined or undefined share in any increments, issues, or which may be derived from or which may accrue in any manner from the lease or permit based upon or pursuant to any agreement or understanding existing at the time when the application is filed, is deemed to constitute an "interest" in such lease or permit.

(b) *Regional mining supervisor.* The Regional Mining Supervisor of the Geological Survey for the region in which the lands under permit or lease are situated.

(c) *Rule of approximation.* The rule of approximation applies where an application embraces an acreage in excess of the acreage limitation; it may be allowed for the excess acreage if exclusion of the smallest legal subdivision involved would result in a deficiency which would be greater than the excess resulting from the inclusion of such subdivision.

§ 3500.1 Minerals subject to leasing.

§ 3500.1–1 Public domain and acquired minerals.

The Mineral Leasing Act, as amended, the Acquired Lands Leasing Act and the Reorganization Act provide for the leasing of deposits of coal; chlorides, sulphates, carbonates, borates, silicates, or nitrates of potassium and sodium; phosphate; native asphalt, solid and semisolid bitumen, and bituminous rock including oil-impregnated rock or sands from which oil is recoverable only by special treatment after the deposit is mined or quarried; sulphur in the States of Louisiana and New Mexico; minerals in acquired lands which would be subject to location under the United States mining laws if located in public domain lands; and for the development of sodium, magnesium, aluminum, or calcium deposits, in any of the forms described and associated with the potassium deposits.

§ 3500.1–2 Reports required.

All reports concerning operations shall be filed with the Mining Supervisor.

§ 3500.1–3 Special acts.

(a) Gold and Silver in Confirmed Private Land Grants.

(b) Asphalt in Oklahoma.

(c) Nevada. (1) Silica sands and other nonmetallics, deposits of phosphate, coal, sodium and potash in lands withdrawn by Executive Order No. 5105 of May 3, 1929.

(2) Sand and gravel in certain lands patented to the State.

(d) Reserved minerals in lands patented to the State of California for park and other public purpose.

(e) Certain National Forest lands in Minnesota. Permits the prospecting, development, and utilization of those mineral resources which because of withdrawal, reservation, statutory limitation, or otherwise, are not subject to the general mining laws, and for the development and utilization for which no other authority exists.

(f) Lake Mead Recreation Area. All minerals subject to the general mining laws and mineral deposits of coal, phosphate, potassium, and sodium.

(g) National Forest Wilderness. All leasing act minerals remain subject to leasing until midnight December 31, 1983.

(h) Whiskeytown-Shasta-Trinity National Recreation Area. Permits the leasing of nonleasable and leasable minerals in the area.

§ 3500.2 Multiple Development.

The granting of a permit or lease for the prospecting, development, or production of deposits of any one mineral will not preclude the issuance of other permits or leases for the same land for deposits of other minerals with suitable stipulations for simultaneous operation, nor the allowance of applicable entries locations, or selections of leased lands with a reservation of the mineral deposits to the United States.

Subpart 3501—Lands Subject to Leasing

§ 3501.1 Public Domain.

§ 3501.1–1 Protection of preexisting rights.

(a) *Potassium.* (1) Section 6 of the act of February 7, 1927, supra, which repealed the act of October 2, 1917 (40 Stat. 297), excepts valid claims existing at the passage of the act and thereafter maintained in compliance with the law under which initiated, which claims may be perfected under such law, including discovery.

(2) As to potassium mining claims, only those claims may be patented which were initiated prior to and were valid existing claims on October 2, 1917, and have since been duly maintained as such.

(b) *Sodium.* Mining claims for deposits described in part 3500 which were valid on February 25, 1920, or on lands in San Bernardino County, Calif., on December 11, 1928, if duly maintained, may be patented under the law under which they were initiated. Otherwise such deposits may be secured only under the Mineral Leasing Act.

(c) *Phosphate.* Mining claims for deposits described in part 3500 which were valid on February 25, 1920, if duly maintained, may be patented under the law under which they were initiated. Otherwise such deposits may be secured only under the Mineral Leasing Act.

(d) *Sulphur.* Mining claims for sulphur deposits on lands such as specified in part 3500 situated in Louisiana which were valid on April 17, 1926, or on such lands in New Mexico, on July 16, 1932, if duly maintained, may be patented under the law under which they were initiated. Otherwise, such deposits may be secured only under the act of April 17, 1926 (44 Stat. 301), as amended July 16, 1932 (47 Stat. 701; 30 U.S.C. 271–276).

§ 3501.1–2 Unsurveyed lands, General.

(a) All prospecting permits may be issued either by metes and bounds description or approved protraction surveys. All leases, preference right or competitive, must be surveyed prior to issuance of a lease.

(b) When protracted surveys have been approved and the effective date thereof published in the FEDERAL REGISTER, all applications to lease lands shown on such protracted surveys, filed on or after such effective date, must describe the lands only according to the section, township, and range shown on the approved protracted surveys.

(1) *Survey for leasing—Applicant's expense.* (*a*) Prior to the issuance of a lease based upon discovery of valuable deposits of potassium, sodium or sulphur, the survey for unsurveyed lands will be at the expense of the applicant.

(*b*) A deposit of the estimated cost of making a survey of the lands as officially determined by the Bureau of Land Management will be required. This survey will be an extension of the public land surveys over the lands applied for, and the lands to be included in the lease will be conformed to the subdivision of such survey.

(2) *Government expense.* Prior to issuance of a lease based upon discovery of coal and on all competitive leases, the survey of unsurveyed lands will be at the expense of the Government.

§ 3501.1–3 Description of lands in offer.

A complete and accurate description of the lands for which the lease is desired is required. The lands in the lease or permit shall be in reasonably compact form entirely within an area of 6 miles square or within an area not exceeding six surveyed or protracted sections in length or width; except for coal cases where noncontiguous tracts can be efficiently worked as a single mine or unit.

(a) *Surveyed lands.* If the lands have been surveyed under the public land rectangular system, each application must describe the lands by legal subdivision, section, township and range.

(b) *Protracted surveys.* When protracted surveys have been approved and the effective date thereof published in the FEDERAL REGISTER, all applications to lease lands shown on such protracted surveys, filed on or after such effective date, must describe the lands only according to the section, township, and range shown on the approved protracted surveys.

(c) *Unsurveyed lands.* If the lands have neither been surveyed on the ground nor shown on the records as protracted surveys, each application must describe the lands by metes and bounds, giving courses and distances between the successive angle points on the boundary of the tract, in cardinal directions except where the boundaries of the lands are in irregular form, and connected by courses and distances to an official corner of the public land surveys. In Alaska the description of unsurveyed lands must be connected by courses and distances to either an official corner of the public land surveys or to a triangulation station established by any agency of the United States (such as the U.S. Geological Survey, the Coast and Geodetic Survey, or the International Boundary Commission), if the record position thereof is available to the general public.

(d) *Unsurveyed public lands adjacent to tidal waters in southern Louisiana and Alaska.* In lease offers embracing unsurveyed public lands adjacent to tidal waters in southern Louisiana and in Alaska, if the offeror finds it impractical to furnish a metes and bounds description, as required in paragraph (c) of this section with respect to the water boundary, he may, at his option, extend the boundary of his offer into the water a distance sufficient to permit complete enclosure of the water boundary of his offer by a series of courses and distances in cardinal directions (the object being to eliminate the necessity of describing the meanders of the water boundary of the public lands included in the offer). The description in the lease offer shall in all other respects conform to the requirements of paragraph (a) of this section. Such description would not be deemed for any purpose to describe the true water boundaries of the lease, such boundaries in all cases being the ordinary high watermark of the navigable waters. The land boundaries of such overall area shall include only the public lands embraced in the offer. The offeror shall agree to pay rental on the full acreage included within the description with the understanding that rights under any lease issued on that offer will apply only to the areas within that description properly subject to lease under the act, but that the total area described will be considered as the lease acreage for purposes of rental payments, acreage limitations § 3100.1–5 and the maximum or minimum area to be included in the lease pursuant to § 3110.1–3. The tract should be shown in outline on a current quadrangle sheet published by the U.S. Geological Survey or such other map as will adequately identify the lands described.

§ 3501.1–4 Acreage limitations.

(a) *Computing acreage holdings.* In computing acreage holdings or control, the accountable acreage of a party owning an undivided interest in a lease or permit shall be such party's proportionate part of the total lease and permit acreage. Likewise, the accountable acreage of a party owning an interest in a corporation or association shall be such party's proportionate part of the corporation's or association's accountable acreage except that no person shall be charged with his pro rata share of any acreage holdings of any association or corporation, unless he is the beneficial owner of more than 10 percent of the stock or other instruments of ownership or control of such association or corporation.

(b) *Allowable acreage.* Except as hereinafter stated, no person, association, or corporation may hold at any one time leases or permits exceeding the acreage as stated below in any one state, except for phosphate in the United States, whether directly through the ownership of such leases and permits, or interest therein, and applications therefor, or indirectly as a member of an association or as a stockholder of a corporation holding such leases and permits, or interest therein, and applications therefor. The rule of approximation applies to all applications for permits and leases.

(1) *Coal* (i) A permit may not exceed 5,120 acres. Holdings in permits and leases shall not exceed 46,080 acres.

(ii) There is no statutory limitation on the acreage that may be included in any one leasing tract. However, the authorized officer after consultation with the mining supervisor of the Geological Survey, will determine the amount of acreage to be included in each leasing tract, taking into consideration the area required for plant facilities and such other data as may be pertinent.

(2) *Potassium.* A lease or permit may not exceed 2,560 acres. Holdings in permits shall not exceed 51,200 acres. Holdings in leases may not exceed 25,600 acres in one or more mining units.

(3) *Sodium.* A lease or permit may not include more than 2,560 acres. Holdings in permits and leases shall not exceed 5,120 acres.

(4) *Phosphate.* A lease or permit may not exceed 2,560 acres. Holdings in leases and permits shall not exceed 20,480 acres in the United States.

(5) *Sulphur.* A lease or permit may not include more than 640 acres. Holdings may not include more than three permits or leases.

(6) *Asphalt.* A lease may not include more than 2,560 acres. Holdings may not include more than 7,680 acres in any one State irrespective of the number of leases.

§ 3501.1–5 Exceptions.

(a) National parks and monuments.

(b) Indian reservations.

(c) Incorporated cities, towns, and villages.

(d) Naval petroleum and oil shale reserves.

(e) Lands acquired under the act of March 1, 1911 (36 Stat. 961; 16 U.S.C. 513–519) known as the Appalachian Forest Reserve Act, or other acquired lands.

§ 3501.1–6 Rejections.

Applications for permits or leases which are filed for lands not available for prospecting or leasing, or which do not comply with the regulations in this part as to acreage limitations and land descriptions will be rejected.

§ 3501.2 Acquired lands.

§ 3501.2–1 Lands and deposits not subject to leasing.

(a) Lands acquired for the development of their mineral deposits.

(b) Lands acquired by forclosure or otherwise for resale.

(c) Lands acquired as surplus under the Surplus Property Act of October 3, 1944 (58 Stat. 765; 50 U.S.C. 1611, et seq.).

(d) Lands in incorporated cities, towns, and villages.

(e) Lands in national parks and monuments.

(f) Lands set apart for military or naval purposes, including lands within the naval petroleum and oil shale reserves.

(g) Lands which are tide lands, submerged coastal lands, within the Continental Shelf adjacent or littoral to any part of land within the jurisdiction of the United States.

§ 3501.2–2 Sale or conveyance of lands.

Any sale or conveyance of lands subject to the act by the agency having jurisdiction thereof, shall be subject to any lease or permit theretofore issued under the act.

§ 3501.2–3 Outstanding permits and leases.

(a) *Acquired lands*—(1) *Leasable minerals*. Coal, phosphate, sodium, potassium, sulphur, or oil shale leases outstanding on August 7, 1947, and which cover lands subject to the act, may be exchanged for new leases to be issued under the act subject, in each case, to such appropriate conditions as may be prescribed.

(2) *Solid (hardrock) minerals*. Prospecting permits and leases, heretofore issued by the Department of Agriculture will be continued to be administered by the Department of the Interior in accordance with the regulations under which they were issued.

§ 3501.2–4 Description of lands in application.

(a) *Surveyed lands*. If the land has been surveyed under the rectangular system of public land surveys, and the description can be conformed to that system, the land must be described by legal subdivision, section, township, and range. Where the description cannot be conformed to the public land surveys, any boundaries which do not so conform must be described by metes and bounds, giving courses and distances between the successive angle points with appropriate ties to the nearest existing official survey corner. If not so surveyed and if within the area of the public land surveys, the land must be described by metes and bounds, giving courses and distances between the successive angle points on the boundary of the tract, and connected with a reasonably nearby corner of those surveys by courses and distances.

(b) *Lands not surveyed under rectangular survey*. (1) If the lands have not been surveyed under the rectangular system of public land surveys, and the tract is not within the area of the public land surveys, it must be described as in the deed or other document by which the United States acquired title to the lands or minerals.

(2) If the desired land constitutes less than the entire tract acquired by the United States, it must be described by courses and distances between successive angle points on its boundary tying by course and distance into the description in the deed or other document by which the United States acquired title to the land.

(3) In addition, if the description in the deed or other document by which the United States acquired title to the lands does not include the courses and distances between the successive angle points on the boundry of the desired tract, the description in the offer must be expanded to include such courses and distances.

(4) Application or offer must be accompanied by a map upon which the desired lands are clearly marked showing their location with respect to the administrative unit or project of which they are a part (such map need not be submitted where the desired lands have been surveyed under the rectangular system of public land surveys, and the land description can be conformed to that system).

(5) If an acquisition tract number has been assigned by the acquiring agency to the identical tract desired, a description by such tract number will be accepted in such offer or application.

(c) *Accreted lands*. Where an offer or application includes any accreted lands that are not described in the deed to the United States, such accreted lands must be described by metes and bounds, giving courses and distances between the successive angle points on the boundry of the tract, and connected by courses and distances to an angle point on the perimeter of the acquired tract to which the accretions appertain.

§ 3501.2–5 Acreage limitations.

(a) *Restrictions on holdings*. The amount of acquired lands acreage that may be held under lease or permit either directly or indirectly, individually or as a member of an association or a corporation may not be in excess of the amount of public domain acreage for the same minerals permitted to be held under the mineral leasing laws. Public domain lease holdings shall not be charged against acquired lands lease holdings; such respective holdings shall not be interchangeable. Where the United States owns only a fractional interest in the mineral resources of the lands involved, only that part of the total acreage involved in the lease which is proportionate to the ownership by the United States of the mineral resources therein shall be charged as acreage holdings. The acreage embraced in a future interest lease is not to be charged as acreage holdings until the lease for the future interest takes effect.

(b) *Allowable acreage*—(1) *Leasable minerals*. See sec. 3501.1–4(b).

(2) *Locatable minerals*. (*Minerals* other than those subject to the 1920 Act as amended.) (i) No applicant may hold more than 20,480 acres under prospecting permit and lease of which not more than 10,240 acres may be held under lease, provided, however, that the Secretary may authorize a lessee to hold under lease an additional 10,240 acres of land if he finds, upon a satisfactory showing submitted by the lessee that such additional acreage is necessary to promote the orderly development of mineral resources and does not result in undue control of the mineral to be mined, removed and marketed, but in no event shall a lessee hold in excess of 10,240 acres of leased land for the mining of any dominant single mineral, nor shall any person at any one time hold more than 20,480 acres under permit and lease in any one State.

(ii) A prospecting permit may not include more than 2,560 acres, and will be issued to the first qualified applicant. The lands in the permit must be entirely within an area of six miles square or within an area not exceeding six surveyed sections in length or width. An application for a prospecting permit which covers lands that are not located entirely within an area of six miles square or an area of six surveyed sections in length or width will be rejected in its entirety.

§ 3501.2–6 Consent of administering agency.

(a) *Jurisdiction of lands*. Leases or permits may be issued only with the consent of the head or other appropriate official of the executive department, independent establishment or instrumentality having jurisdiction over the lands containing the deposits, or holding a mortgage or deed of trust secured by such lands, and subject to such conditions as that official may prescribe to insure adequate utilization of the lands for the primary purpose for which they were acquired or are being administered. Such consent to prospecting shall not be deemed to vest in the prospector an exclusive right to exploration or a preference right to a lease under this part.

(b) *Jurisdiction of surface*. Where the United States has conveyed the title to, or otherwise transferred the control of the surface of the lands containing the deposits to any State or any political subdivision, agency or instrumentality thereof, or a college or any other educational corporation, or association, or a charitable or religious corporation or association, such party shall be given written notification by certified mail of the application for the permit or lease, and shall be afforded a reasonable period of time within which to suggest any stipulations deemed by it to be necessary for the protection of existing surface improvements or uses to be included in the permit or lease, setting forth the facts supporting the necessity thereof, and also to file any objections it may have to the issuance thereof. Where such party opposes the issuance of the permit or lease, the facts submitted in support must be carefully considered and each case separately decided on its merits. However, such opposition affords no legal basis or authority to refuse to issue the permit or lease for the reserved minerals in the lands; in such case, the final determination whether to issue the permit or lease depends upon whether the interests of the United States would best be served thereby.

(c) *Identification of administering agency*. All applications and offers for permits or leases should name if practicable, the Government agency from which consent to issuance of a permit or lease must be obtained, or the agency that may have title records covering the ownership of the mineral interest involved, and identify the project, if any, of which the land is a part. Permits or leases to which such consent is necessary will not be issued until the lessee or permittee executes such stipulations as may be required by the consenting agency.

(d) *Right to stipulate.* Lands under jurisdiction of the Department of Agriculture. The Reorganization Plan and the Acts provide that mineral development may be permitted only with the consent of the Secretary of Agriculture and subject to such conditions as he may prescribe to protect the purposes for which the lands were acquired or are being administered. An application will be rejected if the Secretary of Agriculture does not give his consent. Any lease permit, or other instrument granting the right to mine or remove the minerals will contain such stipulations as may be specified by that official in order to protect such purposes. All matters relating to the surface of the land and its protection, including responsibility for securing compliance with all applicable regulations and procedures of the Department of Agriculture, the terms of the lease relating to the surface and surface resources, and the stipulations specified for the protection of the land, are functions of the Department of Agriculture. Lessees and permittees will comply with the applicable regulations of the Secretary of Agriculture and will consult with the authorized representative of the Secretary of Agriculture as to matters relating to the surface.

§ 3501.2–7 Lands subject to leasing.

(a) In acquired lands under the act of March 4, 1917 (39 Stat. 1134, 1150; 16 U.S.C. 520), Title II of the National Industrial Recovery Act of June 16, 1933 (48 Stat. 195, 200, 202, 205; 40 U.S.C. 401, 403(a) and 408), the 1935 Emergency Relief Appropriation Act of April 8, 1935 (49 Stat. 115, 118), section 55 of Title I of the act of August 24, 1935 (49 Stat. 750, 781), the act of July 22, 1937 (50 Stat. 522, 525, 530), as amended July 28, 1942 (56 Stat. 725; 7 U.S.C. 1011(c) and 1018).

(b) In acquired lands, except Indian lands and lands in national parks and monuments, under the jurisdiction of the bureaus of the Department of the Interior where authorized by law.

(c) In those lands added to the Shasta National Forest by the act of March 19, 1948 (62 Stat. 83), which were acquired with funds of the United States, or lands received in exchange therefor.

(d) In those portions of the Juan Jose Lobato Grant (North Lobato tract) and of the Anton Chica Grant (El Pueblo tract) in New Mexico, mentioned in paragraph (c) of this section.

§ 3501.3 Withdrawn, reserved or segregated.

§ 3501.3–1 Lands and deposits not subject to leasing.

See §§ 3501.1–5 and 3501.2–1.

§ 3501.3–2 Consent of administrator.

(a) *Requirements when lands are in a withdrawal.* Where any part of the lands embraced in an application for lease, permit or license is within a withdrawal which does not preclude disposition of the deposits, the head of the Government agency having control will be called upon for a report as to whether there is any objection to the granting of a lease, permit or license. In cases where such agency recommends that a special stipulation be furnished by the applicant to protect the interest of the United States, an appropriate stipulation will be included in the lease, permit or license.

(b) *Requirements when lands are reserved or segregated.* (1) General statement. With respect to lands embraced in a reservation or segregated for any particular purpose the lessee shall conduct operations in conformity with such requirements as may be made by the Bureau of Land Management for the protection and use of the land for the purpose for which it was reserved or segregated, so far as may be consistent with the use of the land for the purpose of the lease, which latter shall be regarded as the dominant use unless otherwise provided or separately stipulated.

(2) Lands disposed of with a reservation of minerals. Where the lands included in a permit, lease or license have been or may be disposed of with reservation of the deposits, a permittee, lessee or licensee must make full compliance with the law under which reservation was made.

(i) *Coal.* See the acts of March 3, 1909 (35 Stat. 844; 30 U.S.C. 81); June 22, 1910 (36 Stat. 583, 30 U.S.C. 83–85); December 29, 1916 (39 Stat. 862; 43 U.S.C. 291–301; June 17, 1949 (63 Stat. 200); June 21, 1949 (63 Stat. 214; 30 U.S.C. 54); March 8, 1922 (42 Stat. 415; 48 U.S.C. 377); and other laws authorizing such reservation.

(ii) *Potassium.* See the acts of July 17, 1914 (38 Stat. 509; 30 U.S.C. 121–123); December 29, 1916 (39 Stat. 862; 43 U.S.C. 291–301); June 17, 1949 (63 Stat. 201); June 21, 1949 (63 Stat. 215; 30 U.S.C. 54); and August 13, 1954 (68 Stat. 708); and other laws authorizing such reservations.

(iii) *Sodium.* See the Acts of July 17, 1914 (38 Stat. 509; 30 U.S.C. 121–123); December 29, 1916 (39 Stat. 862; 43 U.S.C. 291–301); June 17, 1949 (63 Stat. 201); June 21, 1949 (63 Stat. 215; 30 U.S.C. 54); and August 13, 1954 (68 Stat. 708); and other laws authorizing such reservations.

(iv) *Sulphur.* Where lands included in a permit or lease have been disposed of with reservation of sulphur deposits, a permittee or lessee must make full compliance with the law under which such reservation was made. See the Acts of March 4, 1933 (47 Stat. 1570; 30 U.S.C. 124); December 29, 1916 (39 Stat. 862; 43 U.S.C. 291–301); June 17, 1949 (63 Stat. 201); June 21, 1949 (63 Stat. 215; 30 U.S.C. 54); and August 13, 1954 (68 Stat. 708); and other laws authorizing such reservations.

(v) *Asphalt in Oklahoma.* See the Act of February 19, 1912 (37 Stat. 67), and the Act of August 3, 1955 (69 Stat. 445), and the regulations thereunder in Subpart 2781 of this chapter.

(c) *Special Stipulations.* Applicants for permits, leases, and licenses for lands, the surface control of which is under the jurisdiction of the Department of Agriculture, will be required to consent to the inclusion therein of the stipulation on a form approved by the Director. Where the lands have been withdrawn for reclamation purposes the offeror or applicant will be required to consent to the inclusion of a stipulation on the approved forms. If the land is potentially irrigable, or if the land is within the flow limits of a reservoir site or within the drainage area of a constructed reservoir, or if withdrawn for power purposes, or where the lands have been withdrawn as Game Range Lands, Coordination Lands, or Alaska Wildlife Areas, the offeror or applicant will be required to consent to the inclusion of a stipulation on an approved form. Additional conditions may be imposed to protect the land withdrawn if deemed necessary by the agency having jurisdiction over the surface.

§ 3501.3–3 Transfer of surface control.

Where the United States has conveyed the title to, or otherwise transferred the control of the surface of the lands containing the deposits to any State or any political subdivision, agency or instrumentality thereof, or a college or any other educational corporation, or association, or a charitable or religious corporation or association, such party shall be given written notification by certified mail of the application for the permit or lease, and shall be afforded a reasonable period of time within which to suggest any stipulations deemed by it to be necessary for the protection of existing surface improvements or uses to be included in the permit or lease, setting forth the facts supporting the necessity thereof, and also to file any objections it may have to the issuance thereof. Where such party opposes the issuance of the permit or lease, the facts submitted in support must be carefully considered and each case separately decided on its merits. However, such opposition affords no legal basis or authority to refuse to issue the permit or lease for the reserved minerals in the lands; in such case, the final determination whether to issue the permit or lease depends upon whether the interests of the United States would best be served thereby.

§ 3501.4 Special leasing acts.

§ 3501.4–1 Lands and deposits subject to prospecting and leases.

See subpart 3560.

§ 3501.4–2 Consent of administrator.

See subpart 3560.

Subpart 3502—Qualification Requirements

§ 3502.1 General.

Every applicant for a permit or lease must show that, with the area applied for, his or its interest or interests in such permits, leases and applications therefor, directly or indirectly, do not exceed in the aggregate the acreage limitation in § 3501.1-4.

§ 3502.1-1 Who may hold interests.

Mineral prospecting permits and mineral leases may be issued only to (a) citizens of the United States; (b) associations of such citizens organized under the laws of the United States or of any State thereof, which are authorized to hold such interests by the statute under which organized and by the instrument establishing the association; (c) corporations organized under the laws of the United States or of any State thereof; including a company or corporation operating a common-carrier railroad, and to municipalities. (a) *Aliens.* Aliens may not acquire or hold any direct or indirect interest in permits or leases, except that they may own or control stock in corporations holding permits or leases if the laws of their country do not deny similar or like privileges to citizens of the United States. If any appreciable percentage of the stock of a corporation is held by aliens who are citizens of a country denying similar or like privileges to U.S. citizens, its application will be denied.

(b) *Minors.* A mineral lease or permit will not be issued to a minor but leases or permits may be issued to a legal guardian or trustee in his behalf. See § 3502.8.

(c) *Common carrier railroad.* Every company or corporation operating a common-carrier railroad must make a statement that it needs the coal for which it seeks a permit or lease for its own use for railroad purposes; that it operates main or branch lines in the State in which the lands involved are located; that the aggregate acreage in the permits, leases and applications therefor in which it is interested directly or indirectly does not exceed 10,240 acres; and that it does not hold more than one permit or lease for each 200 miles of its railroad lines served or to be served from such coal deposits exclusive of spurs or switches and exclusive of branch lines built to connect the leased coal with the railroad, and also exclusive of parts of the railroad operated mainly by power produced otherwise than by steam.

§ 3502.1-2 Bona fide purchasers.

(a) *Provisions of statute.* The Act of September 21, 1959 (73 Stat. 571), as amended by the Act of September 2, 1960 (74 Stat. 781; Public Law 86-705), provides that the right to cancel or forfeit for violation of any of the provisions of this Act shall not apply so as to affect adversely the title or interest of a bona fide purchaser of any lease, option to acquire a lease or an interest therein, or permit which lease, interest, option, or permit was acquired and is held by a qualified person, association, or corporation in conformity with those provisions, even though the holdings of the person, association, or corporation from which the lease, interest, option, or permit was acquired, or of his predecessor in title (including the original lessee of the United States) may have been cancelled or forfeited or may be or may have been subject to cancellation or forfeiture for any such violation.

(b) *Sale of underlying interests.* If in any proceeding to cancel or forfeit a lease, interest in a lease, option to acquire a lease or an interest therein, or a permit acquired in violation of any of the provisions of this Act, an underlying lease, interest, option, or permit is cancelled or forfeited to the Government and there are valid interests therein or valid options to acquire the lease or an interest therein which are not subject to cancellation, forfeiture, or compulsory disposition, such underlying lease interest, option, or permit shall be sold to the highest responsible, qualified bidder by competitive bidding in a manner similar to that provided for in the offering of leases by competitive bidding subject to all outstanding valid interests therein and valid options pertaining thereto. However, if less than the whole interest in the lease, interest, option, or permit is cancelled or forfeited, such partial interest shall likewise be sold in similar manner. If no satisfactory offer is obtained as a result of the competitive offering of such whole or partial interests, such interests may be sold by such other methods as the authorized officer deems appropriate, but on terms not less favorable to the Government than those of the best competitive bid received.

(c) *Right to dismissal.* Effective as of September 21, 1959, any party to any proceedings with respect to a violation of any provision of the Act, whether initiated prior or subsequent to that date, has the right to be dismissed promptly as such a party by showing that he holds and acquired the interest involving him as a bona fide purchaser without having violated any provisions of the Act. No hearing shall be necessary upon such showing unless prima facie evidence is presented to indicate a possible violation on the part of the alleged bona fide purchaser.

(d) *Suspension.* If during any such proceeding a party thereto files a waiver of his rights under his lease to drill or to assign his interest thereto, or if such rights are suspended by order of the Secretary pending a decision, payments of rentals and the running of time against the term of the lease or leases involved shall be suspended as of the first day of the month following the filing of the waiver or the Secretary's suspension until the first day of the month following the final decision in the proceeding or the revocation of the waiver for suspension.

§ 3502.1-3 Where filed.

(a) *Land office.* All applicants must file their statements of qualification and evidence thereto in the proper land office unless previously filed, in which event a reference by serial number to the record and the land office in which filed, together with a statement as to any amendments, will be accepted.

(b) *Exception.* If applicant is an individual he must submit with each application a statement of his citizenship. See § 3502.2-1.

§ 3502.2 Individuals.

§ 3502.2-1 Statement of citizenship.

If applicant is an individual, he must submit with each application for permit or lease a statement over his own signature setting forth the applicant's citizenship.

§ 3502.2-2 Equitable rights affecting certain coal lands in Oklahoma.

(a) *Requirements.* Prior to the act of February 25, 1920 equitable rights of persons who, prior to February 25, 1920, occupied and improved or claimed coal lands in good faith may be recognized in awarding leases of such lands.

(b) *Preference right.* A holder of a lease or permit, including a lease under temporary extensions, outstanding on May 24, 1949, covering certain coal lands or coal deposits in Oklahoma which the Choctaw and Chickasaw Nations agreed to convey to the United States in a contract ratified by the act of June 24, 1948 (62 Stat. 596), who has maintained or acted diligently to maintain the lease or permit in good standing, may obtain a lease for the same lands or deposits without competitive bidding, provided that he files an application for a lease under this part prior to the expiration date of the current lease.

§ 3502.3 Associations including partnerships.

§ 3502.3-1 Statements.

(a) If an applicant for a permit or lease is an association (including a partnership), it must submit a certified copy of the articles of association and a statement as to their citizenship and holdings as required of an individual.

(b)(1) If the offeror is an association which meets the requirements of § 3502.-1-1 of this chapter, the offer shall be accompanied by a certified copy of its articles of association or partnership, together with a statement showing (i) that it is authorized to hold leases; (ii) that the member or partner executing the lease is authorized to act on behalf of the association in such matters; and (iii) the names and addresses of all members owning or controlling more than 10 percent of the association. A separate statement from each person owning or controlling more than 10 percent of the association, setting forth his citizenship and holdings, shall also be furnished.

(2) If the offer is made by an association which does not meet the requirements of § 3502.1-1 of this chapter the same showing as to citizenship and holdings of its members shall be made as is required of an individual.

§ 3502.3-2 Evidence previously filed.

Where articles of association, including partnership agreements, have previously been filed pursuant to regulations in this section, a reference by serial number to the record in which such evidence has previously been filed, together with a statement as to any amendments thereof will be accepted.

§ 3502.4 Corporations.

§ 3502.4–1 Statements.

(a) If the applicant is a corporation, it must submit statements showing (1) the state in which it is incorporated; (2) that it is authorized to hold leases for mineral deposits, (3) names of the officers authorized to act in such matters in behalf of the corporation; (4) the precentage of the corporation voting stock and all of the stock owned by aliens or those having addresses outside of the United States; and (5) the name, addresses, citizenship, and acreage holdings of any stockholder owning or controlling 10 percent or more of the corporate stock of any class. If more than 10 percent of the stock is owned or controlled by or on behalf of aliens, or persons who have addresses outside of the United States, the corporation must give their names and addresses, the amount and class of stock held by each, and to the extent known to the corporation or which can be reasonably ascertained by it, the facts as to the citizenship of each.

(b) Exceptions.

(1) Requirements for alien interests or persons having addresses outside of the United States. Regulations for potassium, sodium, sulphur and asphalt in Oklahoma state that if more than 10 percent of the stock is owned or controlled by or on behalf of aliens or persons who have addresses outside of the United States, additional qualifications may be required.

§ 3502.5 Guardian or trustee.

§ 3502.5–1 Statements.

(a) Where there is a legal guardian or trustee: A certified copy of the court order authorizing the guardian or trustee to act as such and to fulfill in behalf of the minor or minors all obligations of the lease or arising thereunder; statements by the guardian or trustee as to the citizenship and holdings of each of the minors and as to his own citizenship and holdings, including his holdings for the benefit of other minors similar to that required by § 3502.8.

§ 3502.5–2 Evidence previously filed.

Where evidence of the authority to act of a guardian, trustee, an executor or administrator, have previously been filed pursuant to the regulations in this section, a reference by serial number to the record in which such evidence has previously been filed, together with a statement as to any amendments thereof will be accepted.

§ 3502.6 Attorney-in-fact.

§ 3502.6–1 Statements.

(a) *Evidence required*. (1) All applications must be signed by the applicant or his attorney-in-fact, and if executed by an attorney-in-fact must be accompanied by the power of attorney and the applicant's own statement as to his citizenship and acreage holdings unless the power of attorney specifically authorized and empowers the attorney-in-fact to make such statement or to execute all statements which may be required under these regulations.

(2) Applications on behalf of a corporation must be accompanied by proof of the signing officer's authority to execute the instrument.

(3) Except in a case where an officer of a corporation signs an application on behalf of the corporation, as to which see § 3502.4 evidence of the authority of the attorney in fact to sign the application and permit, if the application is signed by such attorney on behalf of the applicant.

§ 3502.6–2 Evidence previously filed.

Where such power of attorney has been filed in the same land office where the application is filed reference thereto by serial number of the record in which it has been filed may be made upon the filing of subsequent applications.

§ 3502.7 Showing as to sole party in interest.

Every applicant for lease or permit must submit at the time of filing a signed statement that he is the sole party in interest in the application and the lease or permit, if issued; if not, he shall set forth the names of the other interested parties. If there are other interested parties in the application, a separate or joint statement must be signed by them and by the applicant setting forth the nature and extent of the interest of each in the application, the nature of the agreement between them, if oral, and a copy of such agreement if written. Such separate or joint statement of interest and written agreement, if any, or a statement of the nature of such agreement, if oral, must accompany the application. Simultaneously, all interested parties must furnish evidence of their qualifications to hold such lease interest or permit.

§ 3502.8 Heirs and devisees (estates).

§ 3502.8–1 General.

If an applicant for a permit, an applicant for a preference right lease, or a successful bidder to a competitive lease dies before the permit or lease is issued, the permit or lease will be issued to the executor or administrator of the estate if probate of the estate has not been completed; if probate has been completed, or is not required, to the heirs or devisees; and if there are minor heirs or devisees, to their legal guardian or trustee in his name, provided there is filed in all cases the following information:

(a) *Probate not completed*. Where probate of the estate has not been completed:

(1) *Evidence to sign*. Evidence that the person, who as executor or administrator submits forms of lease and bond, has authority to act in that capacity and to sign such forms.

(2) *Evidence of heirship*. Evidence that the heirs or devisees are the heirs or devisees of the deceased permittees and are the only heirs or devisees of the deceased.

(3) *Evidence as to citizenship and holdings*. A statement over the signature of each heir or devisee concerning citzenship and holdings similar to that required by §§ 3502.1 and 3502.2–1.

(b) *Probate proceedings not required*. Where the executor or administrator has been discharged or no probate proceedings are required.

(1) Evidence of will or decree of distrbiuton. A certified copy of the will or decree of distribution, if any, and if not, a statement signed by the heirs that they are the only heirs of the permittees and citing the provisions of the law of the deceased's last domicile showing that no probate is required.

(2) A statement over the signature of each of the heirs or devisees with reference to citizenship and holdings similar to that required by §§ 3502.1 and 3502.2–1 except that if the heir or devisee is a minor, the statement must be over the signature of the guardian or trustee.

§ 3502.9 Municipality.

§ 3502.9–1 Coal.

(a) Evidence required. A municipality must submit evidence of: (1) The manner in which it is organized; (2) that it is authorized to hold a permit or lease; and (3) that the action proposed has been duly authorized by its governing body. Where such material has previously been filed a reference by serial number to the record in which it has been filed, together with a statement as to any amendments, will be accepted.

Subpart 3503—Fees, Rentals, and Royalties

§ 3503.0–3 Authorities.

Fees—Act of August 31, 1951 (5 U.S.C. 140). Rentals see § 3500.0–3.

§ 3503.1 Payments.

§ 3503.1–1 Form of remittance.

Remittances must be submitted as cash, money order, check, certified check, bank draft or bank cashier's check.

§ 3503.1–2 Where remitted.

(a) *Proper land office*. Unless otherwise directed by the Secretary, rentals under all leases and permits issued under the act shall be paid to the Manager of the appropriate Land Office. All remittances to Bureau of Land Management offices shall be made payable to the Bureau of Land Management.

(b) *Geological Survey*. Rentals and royalties on producing mining leases are to be paid to the Regional Mining Supervisor. All remittances to Survey offices shall be made payable to the U.S. Geological Survey.

§ 3503.1–3 When remitted.

First year rental must be remitted at the time of filing applications for prospecting permits and preference right leases. First year rental for competitive leases will be required by decision. Thereafter, rental for all prospecting permits and leases will be required in accordance with permit and lease provisions. Applications for extension of permits must be accompanied by annual rental payment.

§ 3503.2 Fees.

§ 3503.2–1 General statement.

Applications for prospecting permits, leases or licenses, extension of permits, renewals, modifications, and for approval of any instrument transferring a lease or permit or interest therein, must be accompanied by a filing fee of $10 for each application. Such a fee will be retained as a service charge even though an application should be rejected or withdrawn in whole or in part. An application not accompanied by the filing fee will not be accepted.

§ 3503.2–2 Exceptions.

(a) No filing fee required for coal licenses to relief agencies.

(b) Preference right lease applications.

§ 3503.3 Rentals and royalties.

§ 3503.3–1 General statement rentals.

(a) *Permits (Prospecting)*. A prospecting permit application must be accompanied by full payment of the first year's rental at the rate of 25 cents per acre or fraction thereof, but no less than $20 per year, the rental payment to be for the total acreage if known, and if not known, for the total acreage computed on the basis of 40 acres for each smallest subdivision. Thereafter, payment of the annual rental shall be made on or before the anniversary date of the permit.

(b) *Leases*—(1) *Coal.* Annual rental per acre or fraction thereof for coal leases shall be not less than 25 cents for the first year, not less than 50 cents for the second, third, fourth, and fifth years, and not less than $1 for each and every year thereafter during the continuance of the lease. The rental paid for any year shall be credited against the royalties for that year.

(2) *Phosphate.* Annual rental for phosphate leases shall be not less than 25 cents per acre or fraction thereof for the first year, not less than 50 cents for the second and third years, and not less than $1 for each and every year thereafter during the continuance of the lease. The rental paid for any year shall be credited against the royalties for that year.

(3) *Potassium and sodium.* Rental for potassium and sodium leases is 25 cents per acre or fraction thereof for the first calendar year or fraction thereof. Rental for succeeding years is payable on or before January 1, the beginning of the calendar year. Annual rental per acre or fraction thereof is 50 cents for the second, third, fourth, and fifth years, and $1 for the sixth and each succeeding year during the continuance of the lease. The rental for any year will be credited against the first royalties as they accrue under the lease during the year for which rental was paid.

(4) *Sulphur.* Sulphur leases shall provide for payment, in advance, of an annual rental of 50 cents for each acre or part thereof covered by the lease, beginning with the date of the lease, such rental for any year to be credited against the first royalties as they accrue under the lease during the year for which the rental was paid.

(5) *Asphalt.* The annual rental will be 50 cents per acre or fraction thereof payable annually in advance.

(6) *Solid (hardrock) minerals.* An application for preference right lease must be accompanied by a rental payment of $1 for each acre or fraction thereof included in the application, but not less than $20. In no event shall the first year's rental on any lease be less than $20.

(c) *Use permits.* The annual rental for a sodium or phosphate use permit will be not less than $1 per acre or fraction thereof.

(d) *Licenses.* No rental payment required.

§ 3503.3–2 General statement royalties.

(a) *Royalty on production.* Royalty rates will be determined on an individual case basis prior to lease issuanue. Such rates will be set out in the notice of competitive lease offer.

(1) *Exceptions*—(i) *Sulphur.* Leases based upon discovery of valuable sulphur deposits under a sulphur permit shall provide for a royalty of 5 percent of the quantity or gross value of the output of sulphur at the point of shipment to market. Leases for lands known to contain valuable deposits of sulphur and not covered by sulphur permits or leases shall provide for such royalty as will be determined prior to the issuance of the lease, but in no case shall the royalty be less than 5 percent of the quantity or gross value of the output of sulphur at the point of shipment to market.

(ii) *Solid (hardrock) minerals.* The terms and conditions of the lease, including the royalty rates, will be established on an individual case basis. If minerals other than that specified in the issued lease should be discovered and mined by the lessee, an applicable royalty rate will be established by the lessor for such mineral.

(b) *Minimum royalty*—(1) Coal. Leases shall be conditioned upon the payment of a royalty on a minimum annual production beginning with the sixth year of the lease, except when operation is interrupted by strikes, the elements, or casualties not attributable to the lessee, unless, on application and showing made, operations shall be suspended when market conditions are such that the lease cannot be operated except at a loss or for the other reasons specified in section 39 of the act (see sec. 3503.3–2(e)). Operations under the lease shall be continuous except in the circumstances described or unless the lessee shall pay a royalty, less rent, on the minimum production for one year in advance, in which case operations may be suspended for that year.

(i) *Exception.* (*a*) *Certain coal lands in Oklahoma.* In the case of an award of a lease to a qualified person the royalties will be established at rates not less than the minimum provided for leases under the act.

(2) *Potassium, sodium and sulphur.* Leases will require the payment of a royalty on a minimum annual production beginning with the sixth full calendar lease year, unless operations are interrupted by strikes, the elements, or casualties not attributable to the lessee, or unless, on application and showing made, lease operations are suspended by the Department of the Interior for the reasons specified in section 39 of the Mineral Leasing Act (30 U.S.C. 209).

(3) *Phosphate.* (i) *Minimum production.* Each lease will contain appropriate conditions fixing a minimum annual production of the leased deposits beginning with the fourth year from date thereof or payment of a minimum royalty in lieu thereof, except when production is interrupted by strikes, the elements, casualties not attributable to the lessee, or upon a satisfactory showing that market conditions are such that the lessee cannot operate except at a loss. When authorized in the lease the minimum production requirements may be satisfied by production from other properties controlled by the lessee and constituting a necessary reserve so located as to be a part of a successful unit operation.

(ii) *Lessee's petition for change in minimum production.* The lessee may request at any time prior to the end of the thirtieth lease month, that the Secretary reduce the amount of the minimum production specified in the lease upon the basis of the showing submitted by the lessee. The petition must be filed in duplicate with the office from which his lease was delivered. It should give, among other relevant information, (a) his estimate of tonnage of mineral phosphate rock and associated or related minerals in the leased land, (b) all available information as to the grade thereof, (c) his plan of operation for the property and adjacent property to be worked therewith, (d) a general statement of the method or methods which he intends to use in mining and processing of the phosphate rock and associated or related minerals, (e) the estimated rate of its extraction and (f) possible absorption in the markets. Within 6 months after receipt of this information the authorized officer, after considering what would be a reasonable period within which to mine the leased deposits taking into account, where material, the lessee's mining operations on adjacent phosphate land owned or controlled by him, will determine whether the minimum production requirement in the lease shall be changed to a lesser figure than the amount then provided.

(c) *Limitation of overriding royalties.* (1) An overriding royalty interest may be created by assignment or otherwise: *Provided, however,* That if the total of the overriding royalty interest at any time exceeds one percent of the gross value of the output at the point of shipment to market, it shall be subject to reduction or suspension by the Secretary to a total of not less than one percent of such gross value, whenever, in the interest of conservation, it appears necessary to do so in order (1) to prevent premature abandonment, or (2) to make possible the economic mining of marginal or low grade deposits. Where there is more than one overriding royalty interest, any such suspension or reduction shall be applied to the respective interests in the manner agreed upon by the holders thereof or in the absence of such agreement, in the inverse order of the dates of creation of such interests.

(2) Any assignment, sublease, or other transfer or agreement which creates an overriding royalty interest, will not be approved unless the owner of that interest files his agreement in writing that such interest is subject to suspension or reduction as provided in paragraph (1) of this section. No overriding royalties shall be paid at a rate in excess of the rate to which they have been so reduced until otherwise authorized by the Secretary.

(3) *Exceptions.* (i) *Coal.* An overriding royalty interest shall not be created by assignment or otherwise exceeding 50 percent of the rate of royalty first payable to the United States under the lease or an overriding royalty interest which when added to any other overriding royalty interest exceeds that percentage, excepting that where an interest in the leasehold, permit, or operating agreement is assigned, the assignor may retain an overriding royalty interest in excess of the above limitation if he shows to the satisfaction of the Bureau of Land Management, that he had made substantial investments for improvements on the land covered by the assignment.

(ii) *Phosphate.* An overriding royalty interest shall not be created by assignment or otherwise exceeding one percent of the gross value of the output at point of shipment to market or an overriding royalty interest which when added to any other overriding royalty interest exceeds that percentage, excepting that where an interest in the leasehold, permit, or operating agreement is assigned, the assignor may retain an overriding royalty interest in excess of the above limitation if he shows to the satisfaction of the authorized officer that he has made substantial investments for improvements on the land covered by the assignment.

(d) *Waiver, suspension, or reduction of rental or minimum royalty.* (1) In order to encourage the greatest ultimate recovery of coal, phosphate, potassium, sodium, and sulphur, and in the interest of conservation, the Secretary of the Interior whenever he determines it necessary to promote development or finds that the leases cannot be successfully operated under the terms provided therein may waive, suspend, or reduce the rental or minimum royalty or reduce the royalty on an entire leasehold, or on any deposit, tract, or portion thereof segregated for royalty purposes.

(2) An application for any of the above benefits shall be filed in triplicate in the office of the mining supervisor for coal, phosphate, potassium, sodium, and sulphur leases. It must contain the serial number of the leases, the land office name, the name of the record title holder and operator or sublessee and the description of the lands by legal subdivision.

(i) Each application involving coal, phosphate, potassium, sodium and sulphur shall show the number and location of each mine, a map showing the extent of the mining operations, a tabulated statement of the minerals mined and subject to royalty for each month covering a period of not less than 12 months next prior to the date of filing of the application, and the average production per day mined for each month and complete information as to why the minimum production was not attained.

(ii) Every application must contain a detailed statement of expenses and costs of operating the entire lease, the income from the sale of any leased products, and all facts tending to show whether the mines can be successfully operated upon the royalty or rental fixed in the lease. Where the application is for a reduction in royalty full information shall be furnished as to whether royalties or payments out of production are paid to others than the United States, the amounts so paid and efforts made to reduce them.

(iii) The applicant must also file agreements of the holders of the lease and of the royalty holders to a permanent reduction of all other royalties from the leasehold to aggregate not in excess of one-half the Government royalties.

(e) *Suspension of operations and production.* (1) Applications by lessees for relief from the producing requirements or from all operating and producing requirements of mineral leases shall be filed in triplicate in the office of the Regional Mining Supervisor for all leases. By Departmental Order No. 2699 and Geological Survey Order No. 218 of August 11, 1952, the Regional Mining Supervisor is authorized to act on applications for suspension of operations or production or both filed pursuant to this section and to terminate suspensions of this kind which have been or may be granted.

(2) The term of any lease will be extended by adding thereto any period of suspension of all operations and production during such term pursuant to any direction or assent of the Secretary.

(3) A suspension shall take effect as of the time specified in the direction or assent of the Secretary. Rental and minimum royalty payments will be suspended during any period of suspension of all operations and production directed or assented to by the Secretary, beginning with the first day of the lease month on which the suspension of operations and production becomes effective or, if the suspension of operations and production becomes effective on any date other than the first day of a lease month, beginning with the first day of the lease month following such effective date. The suspension of rental and minimum royalty payments shall end on the first day of the lease month in which operations or production is resumed. Where rentals are creditable against royalties and have been paid in advance, proper credit will be allowed on the next rental or royalty due under the lease.

(4) No lease shall be deemed to expire by reason of a suspension of either operations or production only, pursuant to any direction or assent of the Secretary.

(5) The minimum annual production requirements of a lease issued under the act for coal, phosphate, potassium, sodium, or sulphur shall be proportionately reduced for that portion of a lease year for which suspension of operations and production is directed or granted by the Secretary of the Interior in the interest of conservation.

(6) *Exceptions.* (i) *Solid (hardrock) minerals.* (*a*) Upon a showing of the need and upon application therefor, filed in triplicate in the office of the Regional Mining Supervisor and a copy filed in the proper land office, the lessee may be granted a suspension of the operating and/or producing requirements of the lease. A rental in lieu of royalty of not less than $1 per acre shall be paid annually during the period of suspension. The period of suspension shall be specified in an appropriate order of the Secretary or his authorized representative.

(*b*) Notwithstanding the provisions of the preceding paragraph, the Secretary, in the interest of conservation of natural resources, may suspend all operating and producing requirements and waive, suspend, or reduce the rental or minimum royalty.

Subpart 3504—Bonds

§ 3504.1 General.

§ 3504.1–1 Statement.

Bonds shall be either corporate surety bonds or personal bonds except that bonds with individual sureties as provided in § 3504.3 may be furnished for the protection of the entryman or owner of surface rights.

§ 3504.1–2 Special acts.

(a) *Gold and silver in confirmed private land grants.* A bond with approved corporate surety in the sum of $2,000 will be required as a guarantee to the making of the investment fixed in the lease and compliance with the other terms and conditions thereof, but a larger bond may be fixed if that amount is determined to be inadequate for the purpose for which given.

(b) *Asphalt in Oklahoma.* A compliance bond in no event less than $1,000 will be required prior to issuance of the lease and compliance with § 3504.2–1(b).

(c) *Nevada*—(1) *Silica sands and other nonmetallic minerals in certain areas in Nevada.* The applicant will be required prior to the issuance of the lease to furnish and maintain thereafter a bond with acceptable corporate surety, or two qualified individual sureties, in the sum of $1,000 or such other amount as may be fixed, conditioned against failure of the lessee to comply with the provisions of the lease.

(2) *Sand and gravel in certain lands patented to the State.* The applicant will be required prior to issuance of the lease to furnish and maintain thereafter a bond with acceptable corporate surety, or two qualified individual sureties, in the sum of $1,000 or such other amount as may be fixed, conditioned against failure of the lessee to comply with the provisions of the lease, and for the protection of the owner of the surface estate from damages resulting from the operation of such lessee.

(d) *Reserved minerals in lands patented to the State of California for park or other public purposes.* Each lessee will be required to furnish a bond in such sum as may be determined adequate, in no case less than $1,000, to insure compliance with the terms of the lease and for the protection of the surface owner.

(e) *Certain national forest lands in Minnesota.* There must be filed a bond in compliance with § 3504.2–1(a)(1) for permits; and § 3504.2–1(b) for leases.

(f) *Lease for minerals on lands withdrawn for reclamation purposes within Lake Mead Recreation area.* There must be filed a bond in compliance with § 3504.2–1(b) for leases.

(g) *Prospecting and mineral leasing within National Forest Wilderness.* There must be filed a bond in compliance with § 3504.2–1(a)(1) for permits; and § 3504.2–1(b) for leases.

(h) *Development of minerals in lands within Whiskeytown-Shasta-Trinity national recreation area.* There must be filed a bond in compliance with § 3504.2–1(a)(1) for permits; and § 3504.2–1(b) for leases.

§ 3504.2 Type of bond.

§ 3504.2–1 Compliance bonds.

(a) *Permit bond*—(1) *Amount.* The applicant must furnish a bond conditioned upon compliance with all terms of the prospecting permit on all permits issued pursuant to applications filed under this section. The bond shall be in the amount determined by the authorized officer, but not for less than $1,000.

(2) *Exception*—(i) *Solid (Hardrock) minerals.* The permittee may also be required, as condition precedent to the issuance of a permit, to furnish a permit bond.

(b) *Lease bond*—(1) *Amount.* A bond conditioned upon compliance with all the provisions of the lease must be furnished on all leases issued. The bond shall be in the amount determined by the authorized officer but in no event less than $5,000 for potassium, sodium, phosphate and sulphur leases; not less than $1,000 for coal leases; and not less than $500 for solid (hardrock) mineral leases. The right is reserved to increase the amount of the bond when deemed proper by the authorized officer.

§ 3504.2–2 Where filed and copies.

Bonds must be filed in the proper land office in a single original copy.

§ 3504.2–3 When filed.

Permit bonds may be filed with an application which will expedite action thereon; or bonds may be filed within 30 days after receipt of notice by the applicant of the bond requirement.

§ 3504.2–4 Form of bond.

Bonds will be furnished on a form approved by the Director.

§ 3504.2–5 Termination of period of liability.

The period of liability of any bond will not be terminated until all terms and conditions in the permit or lease have been fulfilled.

§ 3504.3 Individual sureties.

§ 3504.3–1 Net worth statement.

Each surety must execute a statement showing that he is worth in real property not exempt from execution, double the sum specified in the undertaking, over and above his just debts and liabilities and that he is either a resident of the same State and the U.S. Judicial District as the principal on the bond, or of the State and the Judicial District in which the lands involved are located.

§ 3504.3–2 Certificate required.

There also must be furnished a certificate by a judge or clerk of a court of record, a U.S. Attorney, a U.S. Commissioner, or a U.S. Postmaster, as to the identity, signature, and financial competency of the sureties.

§ 3504.3–3 Requirements.

All bonds furnished with individual sureties will be examined every 2 years, or at any other time when found advisable, and the principal on the bond will be required to furnish new statements of justification by the sureties and a new certificate of financial competency, and if such sureties are unable to qualify additional security will be required.

§ 3504.3–4 Terms.

Where surety bonds are tendered with individuals as sureties they must be executed by not less than two qualified individual sureties to cover compliance with all terms and conditions of the lease or permit or the applicable law or regulations.

§ 3504.3–5 Forms.

The statement of justification required to be furnished by the sureties, and the certificate of competency should be on a form approved by the Director.

§ 3504.4 Corporate bond or personal bond.

§ 3504.4–1 Amount.

To be determined by the authorized officer after consultation with the Mining Supervisor.

(a) Compliance with § 3504.2–1(a)(1) for permits.

(b) Compliance with § 3504.2–1(b) for leases.

(1) *Corporate surety bond.* (i) A corporate surety bond may be filed for a prospecting permit or lease.

(2) *Personal bond*—(i) *Type of bond.* In lieu of a corporate surety bond, a personal prospecting permit or lease bond may be filed.

(ii) *Deposit of securities.* Personal prospecting permit or lease bonds secured by negotiable U.S. bonds of a par value equal to the amount of the required surety bond, together with a power of attorney may be executed on a form approved by the Director.

§ 3504.4–2 Qualified sureties.

(a) *Treasury lists.* A list of companies holding certificates of authority from the Secretary of the Treasury under the Act of Congress, approved July 30, 1947 (6 U.S.C. 6–13) as acceptable sureties on Federal bonds is published in the FEDERAL REGISTER annually.

§ 3504.5 Nationwide bonds.

§ 3504.5–1 Amount.

Lessee may furnish for coal, potassium, sodium, or phosphate a separate bond in the amount of $75,000 for full nationwide coverage of all leases and permits issued for the respective mineral pursuant to the Mineral Leasing Acts, and also pursuant to the Mineral Leasing Act for Acquired Lands (30 U.S.C. sec. 351–359).

§ 3504.6 Statewide bond.

§ 3504.6–1 Amount.

Lessee may furnish for coal, potassium, sodium, or phosphate for each state in which the lessee holds leases or permits separate statewide bond of not less than $25,000 which shall cover all leases and permits issued under this part in that State for the respective mineral.

§ 3504.7 Collective bond.

§ 3504.7–1 Amount.

Lessee may furnish for coal, potassium, sodium, or phosphate a collective bond in an amount not less than the total minimum coverage required if separate bonds on each lease were furnished.

§ 3504.8 Default.

§ 3504.8–1 Payment of surety.

Where upon a default, the surety makes payment to the Government of any indebtedness due under a lease, the face amount of the surety bond and the surety's liability thereunder shall be reduced by the amount of such payment.

§ 3504.8–2 Penalty.

Thereafter upon penalty of cancellation of all of the leases covered by such bond that principal shall post a new nationwide bond in the amount of $75,000, a new statewide bond in the amount of $25,000 or a new collective bond as the case may be, within 6 months after notice, or within such shorter period as the authorized officer of the Bureau of Land Management may fix.

§ 3504.8–3 Relief.

However, in lieu thereof, the principal may within that time file separate bonds for each lease.

§ 3504.8–4 Applicability of provisions to existing bonds.

The provisions hereof may be made applicable to any nationwide, statewide or collective bond in force at the time of the approval of the amendment of this paragraph by filing in the appropriate land office a written consent to that effect and an agreement to be bound by the provisions hereof executed by the principal and the surety. Upon receipt thereof the bond will be deemed to be subject to the provisions of this paragraph.

§ 3504.9 Exploration bond.

§ 3504.9–1 See 43 CFR Part 23.

Subpart 3505—Cooperative Conservation Provisions

§ 3505.1 General.

§ 3505.1–1 Coal fields or prospective areas.

To conserve the natural resources of any coal field or prospective coal area, or any part or zone thereof, and to permit an orderly, efficient and economic development of such coal fields, the act authorizes the Secretary of the Interior to approve cooperative agreements among lessees or permittees and their representatives if such agreements or contracts are certified by the Secretary to be necessary or advisable in the public interest. It also permits him to enter into a development contract with a single lessee and to consolidate the leases or permits of one or more lessees or permittees.

§ 3505.1–2 Solid (hardrock) minerals.

The Secretary of the Interior or his authorized representative may approve operating or development contracts or processing or milling arrangements for the conservation of natural products or whenever in his discretion, the public convenience or necessity may require it or the interests of the United States may be best served thereby.

§ 3505.2 Coal.

§ 3505.2–1 Types of contracts.

(a) *Collective contracts.* The Secretary may approve collective contracts of lessees and permittees and their representatives and others, for prospecting, development or operation of coal fields or prospective coal areas, or any part or zone thereof.

(b) *Development contracts.* The Secretary may enter into a development contract with a single lessee or permittee embracing his leases or permits.

(c) *Consolidation of leases and permits.* The Secretary may consolidate separate Federal permits or leases of one or more lessees or permittees into a lesser number of permits or leases, or into a single permit or lease.

§ 3505.2–2 Application.

(a) *Where filed and copies.* A contract submitted for approval must be filed in the proper land office with enough copies to permit retention of five copies after approval.

(b) *Showing required.* The application must be accompanied by a statement showing all the interests held by the contractor in the area or field and the proposed or agreed plan of operation or development of the field. All the contracts held by the same contractor in the area or field must be submitted for approval at the same time, and full disclosure of the project made. Complete details must be furnished in order that the Secretary may have facts upon which to make a definite determination in accordance with the provisions of the act, and to prescribe the conditions on which approval of the contracts is made.

(c) *Common carrier railroads.* Any company or corporation operating a common-carrier railroad which may be a party to a collective contract or development contract with a Federal lessee under this subpart, to develop its own lands, excluding Federal lands leased by the railroad, in connection with or in cooperation with a Federal lessee or lessees shall not be deemed to be given or hold a lease by virtue of any such arrangement between the working interest owners.

§ 3505.2–3 Special provisions.

(a) *Production and royalties.* A contract approved hereunder shall not provide for an apportionment of production or royalties among the separate tracts comprising the contract area, but may provide for the commingling of production with appropriate allocation to the tracts from which produced. In connection with any contract approved or executed or with any consolidation accomplished under this subpart, the authorized officer may, with the consent of the party or parties involved, establish, alter, change, or revoke mining, producing, rental, minimum royalty, and royalty requirements of such leases or permits or contracts.

(b) *Working interest contracts.* In the case of any contract between lessees or their representatives, or between them and others for collective development or operation of any coal field or coal area, or any part or zone thereof, such arrangement as the working interest owners may enter into for the sharing or division of production among them shall not be deemed to be an apportionment of production or royalties among the separate tracts comprising the contract area.

§ 3505.2–4 Approval.

(a) *Approval of contract.* A contract pursuant to the provisions of this section will be approved or executed by the Secretary.

(b) *Exemption from acreage limitations.* Coal leases and permits operated under a contract pursuant to the provisions of this section may be excepted from acreage limitations or maximum holdings or control imposed by the Act, if it is determined that such exception is required to permit economic development of the resources and is otherwise consistent with the public interest.

§ 3505.3 Solid (Hardrock) minerals.

§ 3505.3–1 Types of contracts.

(a) *Operating or development contract.* The Secretary of the Interior or his authorized representative may approve operating or development contracts, or processing or milling arrangements, made by one or more lessees with one or more persons, associations, or corporations, to justify operations on a large scale for the discovery, development, production or transportation of ores.

§ 3505.3–2 Application.

(a) *Where filed and copies.* An application must be filed in the proper land office in three executed copies, and a duplicate original must be filed with the Regional Mining Supervisor of the Geological Survey. All of the contracts held by the same contractor, in the area, should be submitted at the same time and full disclosure of the project made.

(b) *Showing required.* The contract must be accompanied by a statement showing all of the interests held by the contractor designated in the contract in the area, and also the agreed or the proposed plan of operation or development of the leased lands.

§ 3505.3–3 Approval.

(a) *Approval of contract.* Contracts may, by and with concurrence of the Geological Survey and on such conditions as may be subscribed, be approved by the Secretary or his authorized representative.

(b) *Exemption from acreage limitations.* Operating or development contracts may be approved regardless of acreage limitations provided in § 3501.2–5.

Subpart 3506—Assignments or Transfers and Subleases

§ 3506.1 Qualifications.

§ 3506.1–1 Who may file.

Permits and leases may be transferred in whole or in part to any person, association, or corporation qualified to hold such leases and permits.

(a) *Minors.* A minor is not qualified to hold a permit or lease and a transfer to a minor will not be approved.

(1) *Exception.* An assignment in behalf of a minor heir or devisee of a permittee or lessee to his legal guardian or trustee may be approved.

§ 3506.1–2 Failure to qualify.

No transfer will be approved if the transferee is not qualified to take and hold a permit or lease or if his bond is insufficient.

§ 3506.1–3 Number of copies required.

A single executed copy of qualifications is sufficient.

§ 3506.1–4 Sole party in interest.

Compliance with § 3502.7.

§ 3506.1–5 Attorney-in-fact.

Compliance with § 3502.6.

§ 3506.1–6 Heirs and devisees.

In order for the heirs or devisees of a deceased holder of a permit or lease, an operating agreement, or a royalty interest in a permit or lease, to be recognized by the Secretary as the holder of the permit or lease, agreement or interest, there must be furnished the appropriate showing required under § 3502.8.

§ 3506.2 Requirements.

§ 3506.2–1 Where filed.

An application for approval of an assignment or transfer must be filed in the proper land office as specified in § 3000.5–1.

§ 3506.2–2 Forms and statements.

(a) *Record title; copies required.* Assignments or transfers of record title interest must be filed in triplicate.

(1) *Approved form.* There is no specific form which must be used for assignment transfers or requests for approval thereof. The application must contain evidence of qualifications of the assignee or transferee consisting of the same showing required of a lease or permit applicant as set forth in qualifications subpart 3502.

(2) *Separate instruments required.* A separate instrument of assignment or transfer must be filed for each permit or lease when transfers involve record titles. When transfers to the same person, association, or corporation, involving more than one permit or lease are filed at the same time for approval, one request for approval and one showing as to the qualifications of the assignee or transferee will be sufficient.

(b) *Other than record; title; copies required.* A single executed copy of all other instruments of transfer is sufficient.

§ 3506.2–3 Bonds.

(a) *Coverage.* If a bond is necessary it must be furnished before a transfer of a permit or lease will be approved, the consent of the surety to the substitution of the transferee as principal, or a new bond with the transferee as principal, must be submitted if the original permit or lease required the maintenance of a bond. If the transfer is for part of the land only, it must be for a legal subdivision and (1) the consent of the surety to the transfer and its agreement to remain bound as to the interest retained by the permittee or lessee must be submitted, as well as (2) a new bond with the transferee as principal covering the portion of the lands transferred.

(b) *Continuing responsibility.* The transferor of a permit or lease, including a sublease, and his surety will continue to be responsible for the performance of any obligation under the permit or lease until the effective date of the approval of the transfer. If the transfer is not approved, their obligation to the United States shall continue as though no such transfer had been filed for approval. After the effective date of approval the transferee, including sublessee, and his surety will be responsible for the performance of all permit or lease obligations notwithstanding any terms in the transfer to the contrary. The account under the permit or lease must be in good standing before approval of a transfer will be given.

§ 3506.2–4 Permit or lease account status.

The account under the permit or lease must be in good standing before approval of a transfer will be given.

§ 3506.2–5 Description of lands.

Each instrument of transfer must describe the lands involved in the same manner as described in the permit or lease or in the manner required by § 3501.1–3.

(a) *Effect of assignments.* The approval of transfer of only a part of the lands described in a permit or lease will create a new permit or lease which will be given a current serial number, but a discovery on lands under one permit will not inure to the benefit of the other.

§ 3506.3 Approval.

§ 3506.3–1 Application.

Transfers of permits and leases, whether by direct assignments, working agreements, transfer of royalty interests, subleases or otherwise, must be filed for approval within 30 days from final execution and must contain evidence of the qualifications of the assignee or transferee, consisting of the same showing required of a lease or permit applicant by subpart 3502.

§ 3506.3–2 Effective date.

A transfer will take effect the first day of the month following its final approval by the Bureau of Land Management, or if the transferee requests, the first day of the month of the approval.

§ 3506.4 Royalty interests.

Transfer of royalty interests must be filed within 90 days from final execution and must contain evidence of the qualifications of the assignee or transferee, consisting of the same showing required of a lease or permit applicant by subpart 3502.

§ 3506.5 Extensions.

The approval of such a transfer will not extend the life of the permit or the readjustment periods of the lease.

Subpart 3509—Surface Management

§ 3509 Surface management.

§ 3509.1 See 43 CFR Part 23.

This circular replaces Circulars 1917, 1967, 1968, 2082, 2154, 2155, 2156, 2157, 2219, 2223, 2229, 2230, 2250, 2252, and 2283.

APPENDIX-B

Form 3160–1
(October 1966)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

PHOSPHATE LEASE

Land Office Serial Number

This lease, entered into as of the first day of , by the United States of America,

the lessor, and

, as lessee, pursuant and subject to the terms and provisions of the Act of February 25, 1920 (41 Stat. 437), as amended, hereinafter referred to as the Act, and to all reasonable regulations of the Secretary of the Interior now or hereafter in force when not inconsistent with any express and specific provisions herein, which are made a part hereof.

WITNESSETH:

Sec. 1. *Rights of lessee.* That the lessor, in consideration of rents and royalties to be paid, and the conditions and covenants to be observed as herein set forth, does hereby grant and lease to the lessee the exclusive right and privilege to mine and dispose of all the phosphate and phosphate rock and associated and related minerals hereinafter referred to as leased deposits in, upon, or under the following-described tracts of land situated in the State of

containing acres, more or less, together with the right to construct all such works, buildings, plants, structures, and appliances as may be necessary and convenient for the mining and preparation of the leased deposits for market, the manufacture of products thereof, the housing and welfare of employees, and, subject to the conditions herein provided, including the royalties set forth in Sec. 2(b) hereof, to use any deposit of silica, limestone, or other rock situated on the leased lands as may be utilized in the processing or refining of the leased deposits and so much of the surface of the lands as may reasonably be required in the exercise of the rights and privileges granted.

Sec. 2. In consideration of the foregoing, the lessee hereby agrees:

(a) *Bond.* To maintain the bond furnished upon the issuance of the lease, which bond is conditioned upon compliance with the terms and provisions of this lease, or to furnish such other bond as may be required.

(b) *Royalty.* To pay the lessor a royalty of per-cent of the gross value of the output of leased deposits at the mine, which royalty shall be not less than cents per ton of 2,000 pounds. In addition to the other royalties and rentals provided in this lease, the lessee shall also pay to the lessor a royalty of per ton for so much of any deposit of silica or limestone or other rock situated on the leased lands as may be utilized in the processing or refining of the leased deposits or of deposits from other lands. It is expressly understood that the Secretary of the Interior may establish reasonable minimum values for the purpose of computing royalty on any of the leased deposits, due consideration being given to the highest price paid for a part or a majority of the production of like quality products from the same general area, the price received by the lessee, posted prices and other relevant matters. Royalties shall be payable monthly within 30 days from the expiration of each month in which the leased deposits are mined and transported from the leased land.

(c) *Rental.* To pay the lessor annually, in advance, for each acre or fraction thereof, beginning with the date of execution of this lease, the following rentals: 25 cents per acre for the first year; 50 cents per acre for the second and third years, respectively; and $1 per acre for the fourth and each succeeding year during the continuance of the lease, such rental for any year to be credited against the royalties on the leased deposits as they accrue under the lease during the year for which the rental was paid.

(d) *Minimum production.* To prospect diligently the leased lands and beginning with the fourth year of the lease, except when operations are interrupted by strikes, the elements, or casualties not attributable to the lessee, or unless operations are suspended as provided in Sec. 39 of the Act, to mine each year the leased deposits from any of the lands covered by this lease to a royalty value of $1 per acre or fraction thereof in lieu of mining, pay a minimum royalty of $1 an acre or fraction thereof. The lessee may, at any time prior to the end of the thirtieth month of this lease, file a petition with the Regional Mining Supervisor of the United States Geological Survey, to have the minimum production specified herein changed to a lesser figure, supporting such petition by the required showing and if the fact warrant such action, the lessor will change the requirement to a lesser figure.

(e) *Payments.* To make rental payments to the Manager of the appropriate Land Office, *except* that when this lease becomes productive the rentals and royalties shall be paid to the appropriate Regional Mining Supervisor of the United States Geological Survey, with whom all reports concerning operations under the lease shall be filed. All remittances to the Manager of the Land Office shall be made payable to the Bureau of Land Management, those to the Geological Survey shall be made payable to the United States Geological Survey.

(f) *Plats, reports, maps.* At such times and in such form as the lessor may prescribe, to furnish a plat showing development work and improvements on the leased lands and a report with respect to stockholders, investment, depreciation, and costs. To furnish in such form as the lessor may prescribe, within 30 days from the expiration of each month, a report covering such month, certified by the superintendent of the mine, or by such other agent having personal knowledge of the facts as may be designated by the lessee for such purpose, showing the amount of leased deposits and silica, limestone, or other rock mined during the month, the character and quality thereof, amount of its products and byproducts disposed of and price received therefor, and amount in storage or held for sale. To keep and prepare maps of the leased lands in accordance with the appropriate regulations.

(g) *Weights.* To determine accurately the weight or quantity and quality of all leased deposits and silica, limestone, or other rock mined, and to enter accurately the weight or quantity and quality thereof in due form in books to be kept and preserved by the lessee for such purposes.

(h) *Inspection.* To permit at all reasonable times (1) inspection by any duly authorized officer of the Department, of the leased premises and all surface and underground improvements, works, machinery, equipment, and all books, and records pertaining to operations and surveys or investigations under this lease, and (2) the lessor to make copies of and extracts from any or all books and records pertaining to operations under this lease, if desired.

(i) *Assignment.* To file for approval in the appropriate Land Office within 90 days from the date of execution, any assignment or transfer made of this lease, whether by direct assignment, operating agreement, working or royalty interest, or otherwise. Such instrument will take effect the first day of the month following its approval by the authorized officer of the Bureau of Land Management, or if the assignee requests, the first day of the month of approval. The showing required to be made with an assignment or transfer is set forth in the appropriate regulations.

(j) *Equal Opportunity Clause.* During the performance of this contract, the lessee agrees as follows:

(1) The lessee will not discriminate against any employee or applicant for employment because of race, creed, color, or national origin. The lessee will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, creed, color, or national origin. Such action shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The lessee agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the contracting officer setting forth the provisions of this nondiscrimination clause.

(2) The lessee will, in all solicitations or advertisements for employees placed by or on behalf of the lessee, state that all qualified applicants will receive consideration for employment without regard to race, creed, color, or national origin.

(3) The lessee will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice, to be provided by the agency contracting officer, advising the labor union or workers' representative of the lessee's commitments under Sec. 202 of Executive Order No. 11246 of September 24, 1965, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(4) The lessee will comply with all provisions of Executive Order No. 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

(5) The lessee will furnish all information and reports required by Executive Order No. 11246 of September 24, 1965, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the contracting agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(6) In the event of the lessee's noncompliance with the nondiscrimination clauses of this contract or with any of such rules, regulations, or orders, this contract may be cancelled, terminated or suspended in whole or in part and the lessee may be declared ineligible for further Government contracts in accordance with procedures authorized in Executive Order No. 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order No. 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

(7) The lessee will include the provisions of Paragraphs (1) through (7) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to Sec. 204 of Executive Order No. 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The lessee will take such action with respect to any subcontract or purchase order as the contracting agency may direct as a means of enforcing such provisions including sanctions for noncompliance: *Provided, however,* That in the event the lessee becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the contracting agency, the lessee may request the United States to enter into such litigation to protect the interests of the United States.

(k) *Lands patented with phosphate deposits reserved to the United States.* To comply with all statutory requirements and regulations thereunder, if the lands embraced herein have been or shall hereafter be disposed of under the laws reserving to the United States the deposits of phosphate therein, subject to such conditions as are or may hereafter be provided by the laws reserving such phosphate.

(l) *Operations, wages, freedom of purchase.* To exercise reasonable diligence, skill, and care in the operation of the property, and carry on all operations in accordance with approved methods and practices as provided in the operating regulations, having due regard for the prevention of injury to life, health or property, and of waste or damage to any water or mineral deposits; to pay all wages due miners and employees, both above and below ground, at least twice each month in lawful money of the United States; to accord all miners and employees complete freedom of purchase, to restrict the workday not to exceed eight (8) hours in any one day for underground workers, *except* in cases of emergency; to employ no boy under the age of 16 and no girl or woman, without regard to age, in any mine below the surface; unless the laws of the State otherwise provide, in which case the State laws control.

(m) *Taxes.* To pay when due, all taxes lawfully assessed and levied under the laws of the State or the United States upon improvements, output of mines, or other rights, property, or assets of the lessee.

(n) *Delivery of premises in case of forfeiture.* To deliver up to the lessor in good order and condition the land leased, including all buildings, underground timbering, and such other supports and structures as are necessary for the preservation of the mine.

Sec. 3. The lessor expressly reserves:

(a) *Rights reserved.* The right to permit for joint or several use easements or rights-of-way, including easements in tunnels upon, through, or in the land leased, occupied, or used as may be necessary or appropriate to the working of the same or other lands containing the deposits described in the Act, and the treatment and shipment of the products thereof by or under authority of the Government, its lessees, or permittees, and for other public purposes.

(b) *Disposition of surface.* The right to lease, sell, or otherwise dispose of the surface of any of the lands embraced within this lease which are owned by the United States under existing law or laws hereafter enacted, insofar as said surface is not necessary for the use of the lessee in the mining and removal of the leased deposits, associated and related minerals, and to lease other mineral deposits in the lands.

(c) *Protection of the surface, natural resources, and improvements.* The lessee agrees to take such reasonable steps as may be needed to prevent operations from unnecessarily: (1) causing or contributing to soil erosion or damaging any forage and timber growth thereon; (2) polluting the waters of springs, streams, wells, or reservoirs; (3) damaging crops, including forage, timber, or improvements of a surface owner; or (4) damaging range improvements whether owned by the United States or by its grazing permittees or lessees; and upon any partial or total relinquishment or the cancellation or expiration of this lease, or at any other time prior thereto when required by the lessor and to the extent deemed necessary by the lessor, to fill any sump holes, ditches and other excavations, remove or cover all debris, and, so far as reasonably possible, restore the surface of the leased land to its former condition, including the removal of structures as and if required. The lessor may prescribe the steps to be taken and restoration to be made with respect to lands of the United States and improvements thereon.

(d) *Monopoly and fair prices.* Full power and authority to promulgate and enforce all orders necessary to insure the sale of the production of the leased lands to the United States and to the public at reasonable prices, to protect the interest of the United States, to prevent monopoly, and to safeguard the public welfare.

(e) *Readjustment of terms.* The right reasonably to readjust and fix the royalties payable hereunder and other terms and conditions, including amount of minimum annual production, at the end of 20 years from the date hereof, and thereafter at the end of each succeeding 20–year period during the continuance of this lease unless otherwise provided by law at the time of the expiration of any such period, but in case the lessee be dissatisfied with the rate of royalty or other terms and conditions so fixed, he shall be entitled to surrender this lease in the manner and under the conditions provided in Secs. 4 and 5 hereof.

(f) *Waiver of conditions.* The right to waive any breach of the covenants and conditions contained herein *except* such as are required by the Act, but any such waiver shall extend only to the particular breach so waived and shall not limit the rights of the lessor with respect to any future breach; nor shall the waiver of a particular cause of forfeiture prevent cancellation of this lease for any other cause, or for the same cause occurring at another time.

Sec. 4. *Relinquishment of lease.* Upon a satisfactory showing that the public interest will not be impaired, the lessee may surrender the entire lease or any legal subdivision thereof. A relinquishment must be filed in *duplicate* in the appropriate Land Office. Upon its acceptance, it shall be effective as of the date it is filed, subject to the continued obligations of the lessee and his surety to make payment of all accrued rentals and royalties and to provide for the preservatioo of any mines or productive works or permanent improvements on the leased lands in accordance with the regulations and terms of the lease.

Sec. 5. *Removal of equipment, etc., on termination of lease.* That on termination of this lease, by surrender or forfeiture, the lessee shall have the privilege at any time within a period of 90 days thereafter of removing from the premises all machinery, equipment, tools, and materials, other than underground timbering placed by the lessee in or on the leased lands, which are not necessary for the preservation of the mine. Any materials, tools, appliances, machinery, structures, and equipment, subject to removal as above provided which are allowed to remain on the leased lands shall become the property of the lessor on expiration of the 90–day period or such extension thereof as may be granted because of adverse climatic conditions throughout said period, provided that the lessee shall remove any or all of such property where so directed by the lessor.

Sec. 6. *Proceedings in case of default.* If the lessee shall not comply with any of the provisions of the Act or the regulations thereunder or default in the performance or observance of any of the terms, covenants, and stipulations hereof and such default shall continue for a period of 30 days after service of written notice thereof by the lessor, the lessor may institute appropriate proceedings in a court of competent jurisdiction for the forfeiture and cancellation of this lease as provided in Sec. 31 of the Act, provided that if this lease has not been issued under competitive bidding, as to any default not corrected prior to the commencement of production, the lessor may cancel such lease without institution of such court proceedings. Furthermore, if the lessee fails to take prompt and necessary steps to prevent loss or damage to the mine, property, or premises, or danger to the employees, the lessor may enter on the premises and take such measures as may be deemed necessary to prevent such loss or damage or to correct the dangerous or unsafe condition of the mine or works thereof, which shall be at the expense of the lessee: *Provided*, that the lessee shall not be held responsible for delays or casualties occasioned by causes beyond the lessee's control.

Sec. 7. *Heirs and successors in interest.* Each obligation hereunder shall extend to and be binding upon, and every benefit hereof shall inure to the heirs, executors, administrators, successors, or assigns of the respective parties hereto.

Sec. 8. *Unlawful interest.* No Member of, or Delegate to, Congress, or Resident Commissioner, after his election or appointment, or either before or after he has qualified and during his continuance in office, and no officer, agent, or employee of the Department of the Interior, except as provided in 43 CFR 7.4(a)(1), shall be admitted to any share or part in this lease or derive any benefit that may arise therefrom; and the provisions of Section 3741 of the Revised Statutes of the United States (41 U.S.C. Sec. 22), as amended, and Sections 431, 432, and 433, Title 18 U.S.C., relating to contracts, enter into and form a part of this lease so far as the same may be applicable.

THE UNITED STATES OF AMERICA

By ______________________________

(Signing Officer)

____

(Title)

____

(Date)

WITNESSES TO SIGNATURE OF LESSEE

______________________________ ______________________________

(Signature of Lessee)

______________________________ ______________________________

(Signature of Lessee)

______________________________ ______________________________

(Signature of Lessee)

If this lease is executed by a corporation, it must bear the corporate seal

Title 43—Public Lands: Interior

CHAPTER II—BUREAU OF LAND MANAGEMENT

PART 3520—PREFERENCE RIGHT AND COMPETITIVE LEASES

§ 3520.1–1 Preference right leases.

(a) *Coal, phosphate, sodium, sulphur, and potassium* (1) The authorized officer shall issue a lease to the holder of a prospecting permit issued for phosphate, sodium, sulphur, or potassium if the permittee shows to the authorized officer that, within the term of the permit, he discovered a valuable deposit of the mineral for which the permit was issued, or for a prospecting permit issued for coal, if the permittee shows to the Secretary that he discovered commercial quantities of coal. (2) If the permit is for sodium, sulphur, or potassium, the authorized officer may not issue a lease unless the permittee also shows that the land is chiefly valuable for the development of the mineral deposit discovered.

(b) *Lease area.* The lease shall be for all or part of the lands in a reasonably compact form.

(c) *Standards to determine "valuable deposit" and "commercial quantities."* A permittee has discovered commercial quantities of coal or a valuable deposit of one of the other permit minerals if the mineral deposit discovered under the permit is of such a character and quantity that a prudent person would be justified in the further expenditure of his labor and means with a reasonable prospect of success in developing a valuable mine. The permittee must present sufficient evidence to show that there is a reasonable expectation that his revenues from the sale of the mineral will exceed his costs of developing the mine, and extracting, removing, and marketing the mineral.

(d) *Applicability.* The standard in paragraph (c) of this section shall apply to all future applications for leases by prospecting permittees, and to applications pending on the effective date of this regulation. Leases which have been issued prior to that date may not be reexamined to determine whether they meet the standards in paragraph (c) of this section.

2. 43 CFR Subpart 3521 is amended by revising § 3521.1–1 and adding §§ 3521.1–4, and 3521.1–5 to read as follows:

§ 3521.1–1 Forms.

(a) (1) An application for a lease by a prospecting permittee shall be filed within 30 days after the permit expires.

(2) If a permittee needs additional time to submit the information required by section 3521.1–1(b) of this part and files, within 30 days after the permit expires or within 60 days from the effective date of these regulations, whichever is later, a notice of application and request for extension of time, the authorized officer shall extend the time for submitting the required information for the period requested, but for not more than one year.

(b) *Initial showing.* The initial application for a lease shall contain the following information:

(1) The quantity and quality of the minerals discovered within the area included within the permit. The term "quantity of minerals" means only measured and indicated reserves. Structural maps of the tops of all beds to be mined; isopachous maps of beds to be mined and interburden; and isopachous maps of overburden (for beds to be mined by surface methods). These maps shall show the location of test holes and outcrops. Estimates of measured and indicated reserves for each bed to be mined must also be submitted. Coal quality data submittals shall include, as a minimum, an average proximate analysis and BTU content for coal beds, or average grade of the ore for other minerals. In addition, all supporting geological and geophysical data used in development of the above required information shall be submitted.

(2) A map, or maps, as may be available from State or Federal sources, which shows the topography of the land applied for, on which the applicant shall show physical features and natural drainage patterns and existing roads, vehicular trails, and utility systems; the location of any proposed development or mining operations and facilities incidental thereto, including the appropriate locations and areal extent of the areas to be used for pits, overburden, and tailings; and the location of water sources or other resources which may be used in the proposed operations or facilities incidental thereto.

(3) A narrative statement, including:

(i) The anticipated scope, method, and schedule of development operations, including the types of equipment to be used;

(ii) The method of mining anticipated, including the best available estimate of the mining sequence and production rate to be followed;

(iii) The relationship, if any, between the mining operations anticipated on the lands applied for and existing or planned mining operations, or facilities incidental thereto, on adjacent Federal or non-Federal lands;

(iv) A brief description, including suitable maps or aerial photographs as appropriate, of the existing land use within and adjacent to the lands applied for, and of known geologic, visual, cultural, or archaeological features, and the known habitat of fish and wildlife, particularly threatened and endangered species, that may be affected by the proposed or reasonably anticipated exploration or mining operations; and

(v) A brief description of the proposed measures to be taken to prevent or control fire, soil erosion, pollution of surface and ground water, damage to fish and wildlife or other natural resources, air and noise pollution, and hazards to public health and safety; to reclaim the surface; and to otherwise meet applicable laws and regulations which the applicant wishes to have considered by the authorized officer.

(c) *Final Showing.* After the permittee receives the technical environmental analysis report and proposed lease form prepared in accordance with § 3521.1–5 of this subpart, he shall submit the following information:

(1) Estimated revenues;

(2) All the estimated costs that a prudent person would consider before deciding to operate a mine, including the cost of:

(i) Developing the mine;

(ii) Removing the mineral;

(iii) Processing necessary to place the mineral in a saleable condition;

(iv) Transporting the mineral product to the point of sale (f.o.b.);

(v) Applicable royalties and taxes; and

(vi) Complying with existing governmental regulations, reclamation and environmental standards, and proposed lease terms;

(3) A comparison of estimated costs and estimated revenues; and

(4) If the permittee intends to mine the deposit in the land covered by the permit as part of a logical mining unit in conjunction with related deposits, the permittee's showing may include the estimated costs and revenues of the combined mining venture.

(d) *Additional showing for permits issued for potassium, sodium, and sulphur.* In addition, if the prospecting permit was granted for sodium, sulphur, or potassium, the lease application shall also contain sufficient information to show that the land is chiefly valuable for the development of the mineral deposit discovered.

(e) *Amount of detail required.* The information submitted by the permittee shall be sufficient to enable the authorized officer to ascertain whether the permittee's showing has a reasonable factual basis and supports his assertion that:

(1) He has found commercial quantities of coal if the permit was issued for coal; or

(2) He has found a valuable deposit of the minerals covered by the permit if the permit was issued for a mineral other than coal; and

(3) The land is chiefly valuable for the mineral deposit if the permit was issued for sodium, sulphur, or potassium.

(f) *Rental to be submitted.* The initial application must be accompanied by the first year's rental at the rate of 25 cents per acre or fraction thereof except that:

(1) Sulphur. The application shall be accompanied by the first year's rental at the rate of 50 cents per acre or fraction thereof.

(2) Solid (hardrock) minerals. The application shall be accompanied by a payment of $1 for each acre or fraction thereof included in the application, but not less than $20.

(g) *Action if additional information is needed.* (1) If the permittee has not submitted the information this section requires, the authorized officer shall inform the permittee of the omissions and shall give the permittee an opportunity to submit the necessary information. The request for additional information shall specify:

(i) The information the permittee has failed to provide; and

(ii) The date by which the permittee must submit the omitted information, but the authorized officer shall allow no less than 60 days for a response.

(2) The authorized officer may grant the permittee an extension of time to respond to a request for additional information if the permittee requests an extension before the expiration of the period originally stated.

(3) The authorized officer shall reject the lease application if the permittee does not respond to a request for information on time.

(h) *Action if showing is satisfactory.* The authorized officer shall issue a lease to the permittee, if, after reviewing the lease application, he determines:

(1) That the permittee has presented information that has a reasonable factual basis, and the information supports the permittee's assertion that:

(i) He has found coal in commercial quantities if the permit was issued for coal; or

(ii) He has found a valuable deposit of the mineral covered by the permit if the permit was issued for a mineral other than coal; and

(iii) If the permit was issued for sodium, sulfur, or potassium, that the land is chiefly valuable for the mineral deposit; and

(2) That the permittee has taken into account all the factors required by this section.

(i) *Basis for denial of lease application.* The authorized officer may reject the application and inform the permittee of the grounds for the rejection, or request additional information under the procedures in paragraph (g) of this section if he determines that the evidence submitted by the permittee does not support his assertion that:

(1) He has found commercial quantities of coal if the permit was issued for coal; or

(2) A valuable deposit of the mineral covered by his permit if the permit was issued for mineral other than coal; or

(3) If the permit was issued for sodium, sulphur, or potassium, that the land is chiefly valuable for the mineral deposit.

(j) *Hearing and appeal procedures.* (1) If the permittee's application is rejected, he may file a notice of appeal and statement of reasons for appeal in accordance with the procedures of 43 CFR Part 4.

(2) The permittee shall have a right to a hearing before an Administrative Law Judge in the Office of Hearings and Appeals if he has alleged, in his application, facts sufficient to show that he is entitled to a lease.

(3) At the hearing the permittee shall have both the burden of going forward and the burden of proof, and must show by a preponderance of the evidence that he has discovered coal in commercial quantities, or a valuable deposit of one of the other minerals, and if his application is for a sodium, sulphur or potassium lease, that the land is chiefly valuable for the mineral deposit discovered.

§ 3521.1–4 Technical examination/environmental analysis.

In connection with an application for a lease, the authorized officer, with the assistance of the Mining Supervisor, shall make a technical examination and environmental analysis.

(a) The technical examination shall include: (1) an examination of the technical aspects of the proposed operations set forth in the lease application; and

(2) an evaluation of the impacts of such operations on other land uses, resources, or land management programs on or adjacent to the area.

(b) The environmental analysis shall include an analysis of the impact of the proposed operations set forth in lease application.

§ 3521.1–5 Technical examination/environmental analysis report.

(a) Following completion of the technical examination and environmental analysis described in the preceding section, the authorized officer shall prepare a report which sets forth recommendations as to (1) land where reclamation is not attainable or assured; (2) measures required to comply with the reclamation and performance standards set forth in Subpart 3041 of this Chapter; (3) necessary conditions and amounts of bonds to cover estimated reclamation costs for areas that will be disturbed during the initial 5-year period of the lease, permit, or license; (4) any additional, more stringent requirements needed in the lease pursuant to § 3041.2–2(a) of this Subpart; and (5) proposed lease terms and stipulations.

(b) The authorized officer shall send a copy of this report to the lease applicant.

Effective date. May 7, 1976.

Thomas S. Kleppe,
Secretary of the Interior.

[FR Doc.76-13284 Filed 5-6-76;8:45 am]

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Form 1279-3
(June 1984)

BORROWER'

TD 195 .P45 L67 1972
Proposed preference ri
phosphate lease, Los

DATE LOANED	BORROWER

USDI - BLM

KEY

Area "A" (Pad Elevation ± 4,480')
1. Gate House
2. Office
3. Auto Parking
4. Truck Marshalling Area
5. Helicopter Landing Pad

Area "B" (Pad Elevation ± 4,550')
1. Maintenance & Service Shops
2. Phosphate Processing Plant
3. Packing & Loading Area
4. Transformer Station
5. Sulfuric Acid Storage Tank
6. Raw Material Storage Area
7. Liquid Finished Product Storage Tanks

Area "C" (Pad Elevation ± 4,680')
1. Primary Crusher Station
2. Conveyor Transfer Point
3. Secondary Crusher Station
4. Crushed Rock Blending Shed
5. Mobile Equipment Maintenance Shop
6. Water Storage Tank (1,000,000 gal.)

Area "D" (Pad Elevation ± 4,700')
1. Covered Storage For By-Product Gypsum
2. Natural Gypsum Storage Area

Area "E"
1. Sewage Treatment Plant
2. Treated Water Storage Pond

Area "F" - Tailings Disposal Area

Area "G" - Contoured Spoil Pile

Area "H" - Spoil Pile

Area "J" - Main Access Road To Calif. Hwy. 33

Area "P_1" - Initial Quarry Area

Areas "P_2" To "P_5" - Future Quarry Areas

COMPILED BY
CHICAGO AERIAL SURVEY
FRANKLIN PARK ILLINOIS

BY STEREO-PHOTOGRAMMETRIC METHODS.
PROJECT- 7686 DATE OF PHOTOGRAPHY — DEC 1969

SCALE IN FEET
400 0 400 800 1200 1600 2000

CONTOUR INTERVAL 10 BASED ON
MEAN SEA LEVEL DATUM.
2000' GRID BASED ON CALIFORNIA STATE PLANE COORDINATE SYSTEM, ZONE 5

UNITED STATES GYPSUM CO. CHICAGO, ILL.
PINE MTN. PHOSPHATE PROJECT
GEN'L PLANT LAYOUT & MINING AREA
APPROVED F.S. 9-25-74

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